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# PROCEEDINGS OF PUBLIC MEETING ON WATER QUALITY MANAGEMENT FOR ESTUARIES, LOS ANGELES, CALIFORNIA, 25-26 FEBRUARY 1969, HELD AT JUNIPERO SERRA BUILDING, LOS ANGELES, CALIFORNIA

Federal Water Pollution Control Administration
San Francisco, California

26 February 1969

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# CLEAN WATER

## ....FOR THE NATION'S ESTUARIES

PROCEEDINGS
PUBLIC MEETING
ON
WATER QUALITY MANAGEMENT
FOR ESTUARIES
LOS ANGELES, CALIFORNIA
FEBRUARY 25-26, 1969

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PACIFIC SOUTHWEST REGION SAN FRANCISCO, CALIFORNIA

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# PROCEEDINGS

# PUBLIC MEETING
# ON
# WATER QUALITY MANAGEMENT FOR ESTUARIES

Details of illustrations in
this document may be better
studied on microfiche.

STATE OF CALIFORNIA

FEDERAL WATER POLLUTION CONTROL ADMINISTRATION

February 25-26, 1969

Junipero Serra Building
Los Angeles, California

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# CLEAN WATER ....FOR THE NATION'S ESTUARIES

## INVITATION

### PUBLIC MEETINGS ON WATER QUALITY MANAGEMENT FOR ESTUARIES

As a cooperative endeavor, the California State Water Resources Control Board and the Federal Water Pollution Control Administration will co-sponsor two state-wide estuarine public meetings in February 1969. The meetings are scheduled for 9 a.m. at the following locations, on the dates listed:

San Francisco, California February 18-19, 1969

Room 1194
State of California Building
350 McAllister Street
San Francisco, California 94102

Los Angeles, California February 25-26, 1969

Room 1138
Junipero Serra Building
State of California
107 South Broadway
Los Angeles, California 90012

Under mandate of Congress, the U. S. Department of the Interior, Federal Water Pollution Control Administration is responsible for the preparation of a comprehensive report on the status of pollution in the Nation's estuaries. The report will include:

1. an analysis of the importance of estuaries to the economic and social well-being of the people of the United States and of the effects of pollution upon the use and enjoyment of such estuaries;

2. a discussion of the major economic, social and ecological trends occurring in the estuarine zones of the Nation; and

3. recommendations for a comprehensive national program for the preservation, study, use and development of estuaries

of the Nation, and the respective responsibilities which should be assumed by Federal, State and local governments and by public and private interests.

These public meetings will provide an opportunity for individuals, groups, associations and organizations having an interest in the estuaries in the State of California and the problems related thereto, to make their views known.

Presentations may be either written or oral. If written, three copies, preferably typed, should be available for the record. An oral summary of the statement may be given at the meeting if so desired. Those anticipating presentation of statements, or if additional information on the meetings is needed, should call or write:

Mr. Irving M. Terzich
Pacific Southwest Region
Federal Water Pollution Control Administration
760 Market Street
San Francisco, California 94102 Phone: (415) 556-7637

by February 12, 1969, to facilitate adequate time scheduling for presentations. Written statements for the record will be accepted until March 14, 1969.

To accommodate the greatest number of participants, meeting sessions will be planned for the morning, afternoon and evening of the first day. If the volume of presentations warrants, the morning of the second day will be scheduled to hear additional statements.

Attachments
1. Guidelines for Public Meetings
2. National Estuarine Pollution Study

# CLEAN WATER ....FOR THE NATION'S ESTUARIES

## GUIDELINES FOR PRESENTATIONS AT PUBLIC MEETINGS ON WATER QUALITY MANAGEMENT FOR ESTUARINE AREAS
## STATE OF CALIFORNIA

| | |
|---|---|
| San Francisco, California | February 18-19, 1969 |
| Los Angeles, California | February 25-26, 1969 |

The estuary system of California includes its tidal waters, the shore and adjacent land, and the biology and ecology of the coastal areas. It is this total resource on which we wish to receive information at the February 1969 public meetings.

We will be particularly interested in your answers and position on the following types of questions:

What are the values (aesthetic, personal, recreational, dollar, etc.) of an estuary?
How have they been damaged by pollution, and how much?
What do you think the future of our coastal zones should be?
What are the best uses of our estuaries?
What system of management--local, State and Federal--will best provide for development and protection of our estuarine resources?

You may have other pertinent points to raise. We are interested in hearing what you have to say on the subject of pollution, its effects, and its control in our estuaries.

To provide for an orderly meeting with time available for all, the following guides are established:

1. Statements should be concise and based upon the subjects of estuarine pollution and its effects on beneficial uses. It is suggested that lengthy statements be filed in writing for inclusion in the meeting record, and a brief summary of the statement presented orally.

2. A screen, blackboard, easel and projection equipment (2" x 2" 35 mm slides) will be provided for those wishing to accompany their presentation with visual aids. Special visual aids will be the responsibility of those making presentations.

# FOREWORD

The public meeting transcript which follows is an important part of the National Estuarine Pollution Study. In the Clean Waters Restoration Act of 1966, Congress directed the Secretary of the Interior to conduct a study of the Nation's estuaries and to submit a report thereon by November, 1969. The report is to include recommendations for a comprehensive national program for the preservation, use and development of the estuaries; and the respective responsibilities which should be assumed by Federal, State and local governments, and by public and private interests. Jointly sponsored by the State of California and the Pacific Southwest Region, Federal Water Pollution Control Administration the meeting provided an opportunity for all interested individuals and organizations to express their views on water quality management for the estuaries of the State of California.

3-a

TRANSCRIPT

3-6

# PROCEEDINGS

CHAIRMAN McCARTY: Ladies and gentlemen, I would like to open our meeting on the National Estuarine Study with an apology for beginning so late.

Most of you can appreciate with the rain that we have decided it would be best, in the interest of having most of the speakers who wanted to have something to say here this morning with us.

In order to give everyone who would like to make a statement this morning an opportunity to be heard, we will try to carry on through the noon hour, if necessary in order to put those on who wish to speak this morning.

If, for some reason or another, some of you do not have an opportunity to speak this morning, after we get away, I would like to remind you we also will be reconvening the meeting at two o'clock this afternoon and again at seven o'clock this evening, and again at nine o'clock tomorrow morning.

So, if for some reason or other we can't fit everybody in this morning, I hope you will come back with us.

My name is James McCarty, and I am Deputy Director for the National Estuarine Study in the Pacific Southwest Region of the Federal Water Pollution Control Administration.

Mr. Paul De Falco, Director for the Pacific Southwest Region, Federal Water Pollution Control Administration, has asked that I express his deepest regrets at being unable to preside at this meeting.

As many of you know, our agency has been involved to a considerable extent in the oil pollution problem at Santa Barbara, and it has been necessary for him to attend to important matters related to this situation. He does hope to arrive later on this evening.

The purpose of this public meeting is to receive your views on the impact of pollution on California's estuarine system. Certainly, in this State, perhaps more than any other, these waters are among your most priceless resources.

This public meeting is the last of two being planned for the State of California. The first meeting was held last week in San Francisco. To date, meetings such as this have been held in 23 coastal states of the nation.

In a few moments, you will be asked to express your views on this important subject, and you will have an opportunity to appear and present them to the panel.

We are not here today to judge or to cross-examine. We wish to hear and to understand what you have to say. Occasionally, members of the panel may ask questions of the speaker to clarify a point or guide discussions to bring out important views. Debate of issues is not a proper function of this meeting.

I would like to now have you meet members of our panel.

On my right is Mr. Louis De Camp who is Chief of the Estuarine Oceanographic Branch of the Federal Water Pollution Control Administration. His office is located in Washington, D. C.

To my immediate right and to your left is Mr. Edward F. Dibble, who is a Member of the California Water Resources Control Board.

Last, but not least, to my left is Mr. William Crooks, who is an engineer with the California Water Resources Control Board in Sacramento.

Many of you have read our announcements regarding this meeting and are familiar with our study.

For those of you who are not, I would like to call on Mr. Irving Terzich, of our regional staff, to present a brief statement on the legislation related to the study and activities to date.

Mr. Terzich.

STATEMENT OF IRVING M. TERZICH, PUBLIC INFORMATION AND EDUCATION DIRECTOR, PACIFIC SOUTHWEST REGION, FEDERAL WATER POLLUTION CONTROL ADMINISTRATION.

Mr. Terzich: Thank you.

I am Irving M. Terzich, Public Information And Education Director, Pacific Southwest Region, Federal Water Pollution Control Administration.

The National Estuarine Pollution Study was authorized by the Congress through passage of the Clean Water Restoration Act of 1966. This Act directs the Secretary of the Department of the Interior in cooperation with many public and private interests to conduct a comprehensive study of the nation's estuaries. Specifically, this study will:

* Determine the present state of pollution
* Delineate pollution problems requiring further study
* Evaluate the effects of pollution on beneficial uses
* Document the values of estuarine zones
* Provide a basis of action for the beneficial management of the Nation's estuaries.

There are many definitions of an estuary. The Federal Act has defined the term "estuarine zone" for purposes of this study as:

> "An environmental system consisting of an estuary and those transitional areas which are consistently influenced or affected by water from an estuary such as, but not limited to, salt marshes, coastal and intertidal areas, bays, harbors, lagoons, inshore waters and channels, ...."

The Act further defines the term "estuary" to mean:

> "all or part of the mouth of a navigable or interstate river or stream or other body of water having unimpaired natural connection with the open sea and within which the sea water is measurably diluted with fresh water derived from land drainage."

Thus, for the purposes of this study, we are really concerned with all coastal and estuarine waters, the land areas which might affect these waters and the total management of these land and water areas.

The study is to be completed and a report made to the Congress by November of this year.

The responsibility for coordinating the study and preparing a response to Congress was assigned to the Federal Water Pollution Control Administration. The Act specifies that the report to the Congress must include, and I quote: "Recommendations for a comprehensive National program for the preservation, study, use and development of the estuaries of the Nation; and the respective responsibilities which should be assumed by Federal, State, and local governments and by public and private interests."

We are using a three-pronged approach to accomplish this effort.

First, the estuaries themselves are being examined. A description of the national system is being composited in terms of what it is, how it functions and how it has been damaged by pollution.

Next, the social and economic pressures on the estuarine system are being studied. Resource use and the economic and social value of each use are being documented to establish the relative importance of these factors to the estuarine system.

The first two phases will provide an estuarine register -- a comprehensive inventory -- a necessary base for any management plan.

This brings us to the third phase -- the development of recommendations for submission to the Congress. This is a most important phase and must include the needs and desires of the public. This is the primary reason we are gathered here today. Your remarks will be recorded in an official transcript from which recommendations will be prepared on all of the important environmental, social, economic and political factors. In essence, a management plan will be developed, describing the Nation's estuaries and proposing a management system, including the necessary authorities and responsibilities for their wise use and development.

This ambitious task, of course, cannot be done in any single Federal office. Its success requires that we seek help, advice and the counsel of others. Each Federal agency involved in estuarine work is providing us with detailed descriptions and comments. Likewise, each state is providing similar descriptions and comments.

For those aspects of the study requiring special competence and staff not available within the Administration, such as ecology, social and economic values and sedimentation, we are contracting with other agencies and organizations to provide the needed inputs. Also, very importantly, we are working closely with the coastal states. Here, we are working with the State of California. Through the cooperation and assistance of Mr. Norman Livermore, Administrator, The California Resources Agency; Mr. Kerry Mulligan, Chairman, California Water Resources Control Board; and Mr. Paul Bonderson, Chief, Division of Water Quality of that Board, and their respective staffs, we have already contacted other State agencies and have obtained a consolidated description of California's programs related to estuary management and development. This description is now undergoing a final review by various State agencies. An additional part of their support is the co-sponsorship of today's meeting.

This meeting provides an opportunity that should not go unheeded. Congress has asked for recommendations before it legislates, and it is important that your views be made known.

Thank you.

MR. McCARTY: Thank you.

Now, I would like to ask our panel members if they have any opening remarks to make before we begin receiving statements.

Mr. Dibble?

MR. DIBBLE: Mr. McCarty, I would like to make a few comments regarding the situation in California as it relates to the Estuarine Study just to put this into focus regarding California.

California is greatly interested in this study that Congress has directed you to make, and we think that in California it is particularly important because we have several large systems which we ourselves recognize must be looked at very carefully.

Interestingly enough, each is quite different.

The four major ones in California are:

Humboldt Bay up north, which is really an area which is just beginning to see much of the development that could possibly take place. Studies are contemplated to make sure how Humboldt may develop without hurting the environment there and the ecology.

The next major one coming south is the San Francisco Bay and Delta.

As Mr. [illegible]erzich alluded to, the State is making a major study of the San Francisco Bay and the Sacramento-San Joaquin Deltas, having spent something over $2-1/2 million which was appropriated by the Legislature for that purpose to try to determine how the San Francisco Bay and the Delta can be protected and, in fact, the waters cleaned up and yet still see the development of that area with many millions of additional people and more industry in the area.

That report is going to be published this spring, and we are looking forward to its completion.

The next major area coming south, of course, is the Los Angeles Harbor, which again is entirely different in some sense because it doesn't have a major stream system feeding into it like the San Francisco Bay does.

It already, you might say -- well, fully developed isn't perhaps the right word -- but, in fact, much of it is man-made.

Hearings are going to be held shortly by the Los Angeles Regional Water Quality Control Board concerning some of the water quality policies there; and the State Board is watching that with interest, but there, again, it is a matter of how best to protect our water quality in view of all of the development that is involved, both sociologically and economically.

Then going further south, the San Diego Harbor is the other major example. San Diego Harbor is quite again a different situation without large rivers feeding into it. It was a highly polluted body of water until several years ago when a major effort was undertaken to clean it up. The sewage discharges were all converted over into a major sewage discharge system to discharge out into the ocean and other waste discharges have gradually been brought under control so that the ecology has gradually improved.

Of course, there are some smaller areas, too, but those are the major ones, and they each involve quite a different problem.

We are going to be quite interested as to how your study can help us in evolving the enhancement of all these waters, although I must say that I think on some of them that we are already trying to grapple with these and perhaps we will have to come up with the answers before your study even is completed.

Nevertheless, we wanted to do all we can to help the Federal Water Pollution Control Administration, and any information you need we certainly are ready to provide it for you.

Mr. Chairman, also, I have an apology to make.

I was expecting to co-chairman this meeting with you for the two days, but I have been requested to appear this afternoon before the Senate Hearing in Santa Barbara because of their desire for more testimony than we thought they would originally want.

So, I will have to excuse myself later in the morning to go up there, and I hope to be back with you tomorrow morning.

MR. McCARTY: Thank you, Mr. Dibble.

Mr. De Camp.

MR. DE CAMP: I had the dubious honor of being the one who must produce this study and submit it to Congress.

What I would like to say in regard to that is that nothing we do has a real chance of success unless it does have strong state support.

Whatever Congress does is going to reflect the feelings and opinions and needs that have been expressed by each one of the states rather than the coastal states involved with the estuaries.

In addition, whatever is done will reflect what we call public awareness. In other words, unless Congress feels the people want something done, they are not going to do a great deal about it.

That, again, is the purpose of these public meetings.

So, we feel very much we need this public awareness. We need to know and put down on paper the opinions and views of people like yourselves.

Also, we need the views of the states and what they feel need to be done by the state and by the Federal Government and by local government and by private individuals and corporations in order that we can put the whole thing together and, I guess, in simple words as possible, tell Congress what the people want done and who they want to do it.

Thank you.

MR. McCARTY: Thank you, Mr. De Camp.

Bill.

MR. CROOKS: Thank you, Mr. Chairman.

I just wanted to point out that we appreciate the opportunity of being involved in this public meeting, and we are sure that we are going to get a lot of data and much-needed information from these ladies and gentlemen in the audience.

Thank you.

MR. McCARTY: Thank you.

Just a few last remarks about our procedures here, and then we will begin.

With the assistance of the California Water Resources Control Board, we have sent out over 1400 invitations to attend this meeting. However, this is a public meeting, and anyone who would like to speak is welcome to do so.

We would like to encourage any of you who haven't done so already to register at the rear desk and record your desire to speak.

We have also made arrangements to reconvene the meeting this evening, as I mentioned earlier, and also again tomorrow morning for those who may not get an opportunity to make a statement this morning.

If you need any particular help or have any particular questions regarding a statement, if you will contact

Mr. Terzich, who spoke earlier, he will be able to help you.

Also, for those of you who wish to submit written statements but do not wish to present them orally, we will be receiving statements until March 14th of this year. So, any of you who would like to submit a written statement at a later date to be a part of the record, we would very much appreciate receiving the statements.

Up to the present time we have a total of five indications that written statements will be submitted at a later date, and for the record I would like to read the names of people who will be submitting those statements.

Mr. Hubert A. Patchett, President, Morro Coast Audubon Society, Morro Bay, California.

Mr. John W. Johnson, Chairman, Orange County Advisory Committee for Natural Lands Conservation, Corona Del Mar, California.

Orange County Tidelands Association - Mr. J. Frank Robinson, Chairman, Newport Beach.

Professor Grover C. Stephans, Professor Boughey and Professor Whittaker, University of California, Irvine, School of Biological Sciences.

Mrs. Howard S. Babb, Newport Beach, California.

Evelyn Gayman, Desomount Club.

Milton W. Zim, Los Angeles Department Of Water & Power.

James C. Gratteau, Sanitation Districts Of Los Angeles County.

And Marjorie Cushman, U. S. Army Corps Of Engineers, Los Angeles District.

I would like to remind you, too, that we have a 35 mm slide projector available for those who would like it; and also to point out that this meeting is being recorded and a verbatim transcript is being made which will provide a complete record of what is said here today.

We will make copies available to the State Water Resources Control Board -- California's official water pollution control agency. We have found that it generally is best that the people who wish transcripts should request them through their State agencies rather than directly from the Federal Government. This maintains a normal relationship of the people with the state. For those of you who would like a copy of the transcript mailed to you, we have provided a list at the end of the room, and if you enter your name on that list you will automatically receive a copy of the transcript of this meeting.

We would like to request any of you who do have written statements to please submit them before you make your presentation.

Another item I would like to emphasize at this time is that this transcript will be published in black and white.

So, if you have any colored maps or colored slides please try to keep this in mind and any statements you have to make try to avoid such statements as things like "over there, " or "that spot in red," or otherwise, it may appear in the transcript in an unintelligible form.

Once again, I would like to emphasize we are not prepared to entertain questions from the floor.

Our primary purpose here today is to receive your views and ideas and not to provide a forum for debate.

First, I would like to ask if there are any U. S. Congressmen in the audience or their representatives or aides?

Any State Legislators or Representatives or their aides?

If not, I would like to call on Dr. Wheeler J. North to make the first statement.

## STATEMENT OF DR. WHEELER J. NORTH, PROFESSOR OF ENVIRONMENTAL HEALTH ENGINEERING AT THE CALIFORNIA INSTITUTE OF TECHNOLOGY, PASADENA, CALIFORNIA.

DR. NORTH: I am also going to submit a written statement at a later date which will include some data of observations I have made over the years in Newport Bay.

My name is Wheeler J. North. My occupation is Professor Of Environmental Health Engineering at the California Institute Of Technology, Pasadena, California. My training is in biological oceanography. Today I am representing the Ocean Fish Protective Association. I am a member of the Board Of Directors of the Association.

While my principal research interests involve work in the open sea, I have observed and collected extensively in the estuaries, bays, and harbors of Southern California. I have watched the biological decline of many of these areas with increasing concern during my 42 years as a resident of California. I have observed the widest possible range of bay habitats, both by topside work and by scuba diving. These investigations have included many hours in rich pristine areas such as Scammons and Guerrero Negro Lagoons. Far down in Baja California. Contrasted with many more hours in impoverished waters such as the former waste discharge facility of the City of San Diego into San Diego Bay, or the Inner Harbor Regions of Los Angeles Harbor.

The estuarian situations in Southern California typically contain running fresh water for only part of the year. You might not believe that today. These intermittant flows are, nonetheless, sufficiently frequent to maintain the specialized biological character unique to estuaries. Our Southern California estuaries perform many ecological functions. Many of these undoubtedly go unrecognized, but we are certain that the following four are of considerable importance:

1. The estuaries harbor a biota that does not

exist elsewhere because it is highly adapted for estuarine life.

2. The estuaries are intensively used by both migrating and resident bird populations.

3. The estuaries modify transport of organic debris and sediment from the land to the sea in ways that greatly benefit the ecology.

4. The estuaries serve as nurseries for fish species that occur in the open sea as adults.

On this latter point, I continually see large schools of juvenile fishes in our bays and estuaries. I also see these juveniles in the open sea but rarely, if at all, in the concentrations common in estuaries. Juvenile sport fishes I have seen abundantly while diving in estuaries include kelp bass, sand bass, white perch, pile perch, black perch, opaleye perch, rock fish, sculpin, and sand dab. I have also seen juveniles of many other species that are not considered sport fishes. Some of these are important as forage for adult sport fishes.

In California pollution is defined as unreasonable interference with a beneficial use. I think it is clear that this definition of pollution includes estuarine modification which significantly reduces the capacity to act as a nursery for fishes. At the turn of the present century there were six bay-estuaries in Southern California sufficiently large to harbor significant numbers of juvenile fishes. None remain in their original condition. Four of the six (San Diego, Mission, Anaheim Landing and Los Angeles) are biological deserts throughout much or all of their extent. The remaining two (Morro and Newport) support varying abundances of marine life. Where adequate historical information is available, however, it is clear that profound changes have also occurred in all these bay-estuaries, including Newport and Morro Bay.

We do not have quantitative data to describe how abundances of juvenile fishes may have changed. I do feel it is not overly presumptuous, however, to conclude that a substantial and continuing change has occurred in the role our estuaries play as fish nurseries. The most intensively utilized bays in Southern California are almost devoid of life, including fishes. Bays subjected to a lower degree of utilization may have abundant although modified populations, comparing them to conditions ten or fifteen years ago, or to the wonderful undefiled lagoons of Baja California. It seems obvious to me that the Southern California estuaries are polluted and the condition worsens with each passing day, using "pollution" in the sense described above.

Looking at the causes of pollution, I see little hope for our remaining estuaries. We are accustomed to think of marine pollution in terms of low dissolved oxygen, turbid waters, and high coliform densities. In Southern California estuaries, such gross evidences of pollution have tended to appear, if at all, only in the later stages of deterioration. My observations indicate that considerable biological impoverishment occurs at a much earlier stage. When dredges and bulldozers eliminate the flat swamplands that nature has painstakingly taken millenia to build, countless invertebrates perish. With them goes the plant life that sustains their food webs. The shallows of the marshes vanish and the efficient natural systems for regenerating plant nutrients from inflowing debris is destroyed. Without the nutrients to sustain high crops of plant life, in turn sustaining the invertebrate assemblages, juvenile fishes are left without food and large schools simply cannot exist. Some of our largest, most beautiful bays are filled with high quality water, yet the fish life is impoverished. A glance at the bottom tells why. Invertebrate food sources are sparse or absent. We pollute most seriously when first we meddle with our estuaries; they become magnificent marinas and centers for aquatic recreation, but they are then pauperized ecosystems.

The outlook is gloomy indeed. Developers are scrambling to profit from the high prices bay front properties command. One can hardly blame them...They have to make a living. Government officials are eagerly cooperating in elaborate plans for raping what remains of our estuaries. One cannot blame them...they are responding to the needs of the majority electorate. It seems ironic that the average man yearns for a quiet harbor where he can keep a skiff and fishing tackle, yet fulfilling these desires will substantially lessen his chances of fishing success.

It is clear that drastic action must be taken to preserve the few natural estuarine situations remaining in Southern California. Such action is certain to be unpopular with the majority. If you gentlemen are desirous and capable of taking such action, do not ask for quantitative iron-clad proof that estuarine modification destroys the value as an important nursery for fishes. The estuary is such a complex mixture of interacting factors that I feel total quantitation is at present beyond our scientific capabilities. If you wait for vigorous scientific development to fortify your position, our estuaries will not be worth saving. Like many complex environmental problems, the proper pathway is often indicated by looking qualitatively at trends. No trend is more convincing than the story of sportfishing in Southern California. I would like to quote from a pamphlet written in 1952 by J. B. McNally, Captain of a sportfishing boat operating out of Newport Bay:

"Do you know that sixty years ago yellowtail were to be had as far north as San Francisco; that forty years ago albacore were only taken for sport and thrown away because they were considered poison; that thirty years ago bass, barracuda, mackerel, bonito, yellowtail, and white sea bass could all be caught out of one school, feeding on small bait that was chased out of the kelp; that the location of such schools could be seen miles away by the diving birds also feeding on the bait from the top; that twenty years ago our Catalina and San Clemente Channels were the most active and renowned sportfishing grounds in the world?"

I would add a postscript to update McNally's observations, advising Southern California fishermen as follows:

If you want to be certain of excellent fishing nowadays, go to Baja California, where the bays and estuaries have scarcely felt the heavy hand of man.

Thank you.

MR. McCARTY: Thank you, Dr. North.

Will you submit a written statement also?

DR. NORTH: Yes, and I am going to include some of the data and observations I have made in Newport Bay, if you gentlemen would like.

MR. McCARTY: One question I would like to ask of you.

One of the things these public meetings are seeking to gain information or suggestions on is the management of the estuaries.

One of the real problems we face is trying to identify a group of series of agencies that do have responsibility for managing the estuarine resources of the Nation.

I wonder if you have any thoughts or views on how this might best be accomplished.

MR. NORTH: I think the other representative from the Ocean Fish Protective Association may have some words on this that might carry more weight than mine.

I think it is a very difficult problem because the degradation of our estuaries occurs a little bit at a time.

MR. McCARTY: I realize the very difficult problem. I didn't want to put you on a spot.

DR. NORTH: Yes.

And there doesn't seem to be any governmental agency so far that seems to be able to cope with it. I think perhaps we need a super agency that will tell the various organizations that have only partial control.

We have gone in this direction in San Francisco Bay with the BCDC Commission, and I think this is -- from what I have seen of its operation, I think it is the way to go, but instead of just San Francisco, it should be perhaps the whole Nation.

MR. DIBBLE: I have a couple questions, Dr. North, regarding the super agency idea. Super agencies don't necessarily give super answers.

DR. NORTH: Yes.

MR. DIBBLE: Maybe we have just got to come to grips with this and insist that we are going to find an answer, but that wasn't really a question.

You pointed out that while the estuaries have gradually degraded, and then also pointed out what happened to the sportfishing, is the sportfishing problem directly related to the decline in the quality of water in the estuaries, or is it because there are so many more sportsfishermen that it tends to infringe upon the population of fish?

DR. NORTH: I feel fairly certain that we don't know the answer to this.

Certainly the intensity of fishing has increased, and it must affect the population.

Now, whether this effect is significant or not, insofar as I know, the analysis hasn't been done. The only complete analysis I am aware of has been done on the decline in the California sardine.

I feel, nontheless, I am on moderately safe grounds because, as I say, four of these six estuaries are just deserts throughout much of their extent.

I have experiments going on in Newport Bay. I dive there once a month and sometimes once a week, and the too-little fishes are everywhere. I drop something overboard from my boat in Mission Bay, and I dive down, and I rarely see a fish -- I see very few fishes. And I see very few things upon which they can feed.

Again, the natural bay situation that I have seen in Baja California and Northern California are teeming with these juvenile fishes.

I just feel there must be some kind of an effect when you have lost four out of the six.

MR. DIBBLE: Thank you very much.

MR. McCARTY: Thank you, Dr. North.

We will now call on Mr. John B. Gaskill, Chairman, Board Of Directors, Ocean Fish Protective Association.

## STATEMENT OF JOHN B. GASKILL, CHAIRMAN, BOARD OF DIRECTORS, OCEAN FISH PROTECTIVE ASSOCIATION, IN BEHALF OF THE MEMBERSHIP OF THIS ORGANIZATION.

MR. GASKILL: Mr. McCarty, members of the panel, ladies and gentlemen.

I am John B. Gaskill, Chairman, Board Of Directors, Ocean Fish Protective Association.

The organization that I represent is an association of 116 sportsmen clubs with a combined membership more than 10,000 persons. The clubs are geographically spread from Santa Barbara County on the north to San Diego County on the south and from the Pacific Ocean on the west to Riverside

County on the east. The organization also has an associate membership of approximately 1,500 persons who are individual sportsmen that have no affiliation with an organized sportsmen's group.

Our association was formed in 1949 and has been continuously in existence since that time. We have joined together for the purpose of preserving ocean recreational fishing and in particular that fishing which is easily available along the shoreline or is closely adjacent to the shore.

Our concern about the destruction of the estuarine environment is not solely confined to this particular field. It is instead the relationship of its destruction to that of the total environment.

The continued expansive development of the shoreline in California offers an opportunity to reconsider its history with an objective to improving upon past performance in the future. We can no longer afford to lose ecologically important estuaries to real estate developers, beaches to erosion, and a marine biota to the adverse effects of pollution.

A classic example of the loss of an important estuarine system to real estate development is perhaps best illustrated by the recent give-away by the State Lands Commission Of Upper Newport Bay.

We find it singularly odd that although there had been no change in the specifics regarding the circumstances of this land swap, the mere changing of the personnel comprising the Commission suddenly enhanced its merits, even though the prior Commission had repeatedly denied the transfer of these lands that are held in public trust.

The construction practices in the building of marinas within the estuarine complexes is a field which we feel is in dire need of thorough examination. Many things must be done to protect the estuarine environment that is now being destroyed by the laissez-faire attitudes of the governmental agencies responsible for the building standards currently in existence. We can no longer afford to permit concrete lining of the estuary floors. The substitution ov vertical concrete walls for the sandy, gradually sloped edges of the estuary, nor the conversion of the areas adjacent to the perimeter of the estuary into barren, blacktopped parking lots.

With your permission, gentlemen, I would like to digress from my prepared remarks here and refer to this home-made sketch we have.

In addition to the estuaries which you mentioned and those which Dr. North mentioned, San Diego, San Pedro and on up, there are other small estuarine and lagoon-like areas that we feel are also important.

Beginning here where Anaheim Landing used to be, that great complex there known as the Bay Of Naples, Seal Beach, Huntington Harbor, Alamitos Bay, Bolsa Chica, where the old Bolsa Chica Gun Club used to be, and going on north to the present area where the Playa Del Rey Yacht Harbor is and which is actually the outfall for Ballona Creek, and going on north up here to Point Mugu where the Point Mugu Lagoon is, and just shortly north of there where the Oxnard Marina presently is, which is actually the outfall of the Santa Clara River.

A little bit north of there, years ago where the Ventura River empties into the ocean there used to be a small lagoon there.

Our sketch here only goes as far north as Point Conception, but going on up, San Luis Obispo, which is south of Morro Bay, there used to be a small lagoon there.

Of course, Morro Bay is quite an extensive lagoon-like area.

They actually grow oysters there now.

My point in referring to the map is that it seems to us that there must be something that can be done to eliminate the barrenness in these places now.

For example, my sister and her husband keep their boat down at the Alamitos Bay in the yacht harbor there. The walls are utterly vertical completely lined with concrete. The floors of the estuaries are lined with concrete.

But in Mission Bay there is a sandy bottom there. Shorely there are crustaceans and mollusks of some kind, weeds various kinds that can be planted there just as they plant artifically oysters in Japan and develop marine life there in order to make the estuary itself and the smaller ones as well accomplish the function of an estuary.

I now continue with my prepared remarks.

We consider the concomitant use of an estuarine area for the disposal of industrial wastes, thermal pollution and human wastes, to be a reprehensible thing. It is indeed unfortunate that anyone is such a "stick in the mud" as I, who have lived within a twenty mile radius of the City Hall of Los Angeles for fifty-five years this coming June. I have seen the area of what is now known as the Los Angeles Inner Harbor and its environs, deteriorate from a true estuary with mud flats, a slough, clean water (teeming with fish and wildlife), and even a bathing beach, into an open industrial cesspool that is barren of life of any kind.

I have never yet heard a satisfactory answer as to why the types of facilities such as refineries, chemical plants, steam-electric plants and various other processing plants, which now ring our estuaries, could not be located in areas with low recreational and environmental potential rather than high.

It is our contention that the maintenance of desirable recreational, environmental and esthetic conditions are not compatible with waste disposal and the structural monstrosities that generate it.

We, as a conservation organization, have been fighting the problems of the pollution and destruction of our estuaries for the twenty years that we have been in existence.

The minimal successes that we have had are far outweighed by the difficulties mushrooming from the complexities of an ever-increasing population, with its recreational needs and the vested interests (be they industrial or governmental) attempting to use these resources in ways that are not in consonance.

It is the consensus of the organization that I represent that the time is long past when the Federal Government must act to protect our estuaries from further degradation. That the state and local agencies have failed in their responsibilities to the general public in this matter must be obvious to anyone who examines our estuaries in even the most desultory manner.

MR. McCARTY: Thank you, Mr. Gaskill.

Any questions?

3 MR. DE CAMP: Who is the expert from Washington?

MR. GASKILL: I feel there are no experts in this field.

MR. DE CAMP: That is right.

I have pictures of myself at a very tender age wading across the Los Angeles River, so, I do know the problems here, and most of the estuaries you talked about.

But what do you think the Federal Government should do?

MR. GASKILL: Of course, the problems that currently exist at the present time -- I am extremely dubious, for example, if we could reclaim Bixley Slough, for example, and Brighton Beach, as well, down off of Terminal Island; but at least we can increase or upgrade the quality of the waters that are presently existing there.

The smaller lagoons which have not been degraded, and even larger ones like down in San Diego and Mission Bay, certainly things can be done down there to enhance the environment so that it will not remain a barren area.

Now, in the smaller ones there is a study going on by the United States Corps Of Engineers at the present time.

They are going to have a hearing down in Malibu or some place in a few days or a couple weeks -- there are so many meetings I lose track of them -- a public hearing to determine how many more areas they can make into marinas.

Marinas are fine, and I have no quarrel with the persons who are fortunate enough to have their own boat and need a marina to put it in, but it would appear to me that even though it is cheaper for the marina developer to take an estuary that already now is at ocean level, that these lands should be set aside for the general public for the purposes which only they can perform, the purposes that an estuary can only perform, and let the people who are so eager to build marinas build them some place else.

If you don't, then even the purpose of the marina will be lost.

If they destroy the environment, what is left?

MR. DE CAMP: I do not disagree whatsoever, but, again, I say, what do you think the Federal Government should do about it?

MR. GASKILL: Well, if the local and State agencies won't do anything about this, then it appears to me maybe the only alternative is for the Federal Government to do it.

I would like you to go with me, Mr. De Camp, some day down to the marina at Playa Del Rey.

I tell you, if you haven't been there, your eyes will be opened.

I will try to sketch as best I can the set-up there. As you will recall, the Del Rey Duck Club used to be there, and they used to get lots of cockles and lots of fish there and everything else.

Now they built this marina, and the sides are concrete up and down, concrete all the way, and off on the extreme left, if you know the area at all, you recall where Ballona Creek came in, and off to the extreme left past all the slips and everything else they have set up a little slot there with a technological name that they call it which I don't know, but a marine environment area, we call it.

Of course, it is out of the way of the movement of the waters because of the tides and everything else, and it is just as barren as the rest of the thing.

Now, it just appears to me that if they are going to continue to desecrate the estuaries, which I hope they will not do, but if they do, then something must be done to utilize as much of the area to perform the function of an estuary that must be done.

MR. McCARTY: Thank you, Mr. Gaskill.

MR. GASKILL: Thank you for your kindness.

MR. McCARTY: I would like to call on our next speaker, James R. Davis, representing the Port of San Diego.

STATEMENT OF JAMES R. DAVIS,
DIRECTOR OF PUBLIC WORKS, PORT OF SAN DIEGO.

MR. DAVIS: Mr. Chairman, Members of the Panel, ladies and gentlemen.

The preceding speakers have pointed out the loss of the biological environment that has come about with the population growth in California.

We have to acknowledge this, and we have to deplore it, but we also have the problem of being realistic because there are a great many people in California who were not here 40 years ago and whose activities and whose recreations and whose desires tend to impinge upon the environment.

When I first talked to Mr. Terzich on the phone about delivering this talk, it occurred to me, since we did not have a problem, there was no point in coming.

However, I recognized that your study extends to the social and economic aspects of the estuarine developments and that you are concerned about the problem of estuarine management.

It is in that light that I ventured to come here this morning to tell you about a venture in estuarine management which we think has been reasonably successful.

Now, on the West Coast of the United States there are four major natural indentations which lend themselves to development as harbors. Of these, San Diego Bay has enormous potential but its development has been arrested over the years.

This is perhaps fortunate because in the current efforts to utilize and develop this magnificently protected body of water "for the good of all the people" we are able to learn a great deal from current experience and current trends in estuarine management.

In 1961, San Diego Bay was well on its way to becoming an estuarine disaster area. Along its shore and in the hinterland a constantly growing population placed an ever greater load of waste disposal upon the natural capabilities of the Bay.

The main sewer plant of the City of San Diego, located at the very center of the Bay shore, was from 50 to 80% effective, and each day delivered into the Bay large quantities of untreated sewage which formed heavy sludge banks offshore and defiled the waters.

Fish life disappeared. Bird life diminished for lack of the food that could not live in the polluted waters. The seals that for so many years had disported themselves in the Bay no longer came back.

Although the Bay offers one of the most attractive and safe areas for boating, it was not a very pleasant experience to sail in the polluted waters; and swimming, of course, was banned from one beach after another.

The shore-side cities had been granted the tidelands by the State with the stipulation that they must be developed for commerce and navigation, but very little along these lines was done, for lack of a central coordinating agency.

The major development of the Bay shores was carried out by the Navy. Very little had been done by private enterprise or by private interests.

In 1963 all this changed. Two very important things happened. That year saw completion of the great Metropolitan trunk sewer, a giant pipeline that began deep at the lower end of the Bay and made its way northward through Chula Vista and National City, curving around the head of the Bay and down its west shore, passing in a tunnel under Point Loma to a modern disposal plant alongside the ocean. Here the effluent, which is perfectly cleaned, is still not discharged into the water until it has been carried for almost three miles out along the ocean floor and then released at a depth of more than 140 feet.

This great drain picked up all manner of waste material from the entire basin around San Diego Bay, even as far inland as El Cajon, 16 miles from the shore. When it was finished, no more sewage of any sort except that from vessels afloat entered San Diego Bay.

It only took several years for the full results to appear, but now some of them are readily discernible.

Dr. North points out that San Diego Bay is a biological desert, but that condition is changing.

For one thing, swimming is permitted freely in the Bay whereever the shore conditions are safe. Dirty water is no longer a swimming hazard.

The fish have come back, great schools of them, and deep in the Bay at National City they are to be found in tremendous numbers. I have seen them there myself. With them have come the birds, until the south end of the Bay is now one of the richest areas on the West Coast for the study of aquatic birds.

Tourists dining at one of San Diego's newly fashionable waterside restaurants can expect to find themselves observed by the seals who have now come back to enjoy the Bay environment, and they will actually swim up and down in front of Anthony's and watch you while you eat. They are almost like dogs. They expect you to give them something.

It goes without saying that boating is a delight. The steady increase in the number of small boats and in the marinas to accommodate them is an important element in the economic and recreational life of the community.

Now, I might point out here that we do not have in San Diego Bay any of the vertical walls as was pointed out. All of our marinas are afloat, and the shores are either left as they are or protected with rip-rap. We do not have wall shores in those areas controlled by the Port District.

There is one private development going on in the uplands on the Coronada Sac by private industry similar to the Huntington Harbor. That is the only thing that resembles a barricaded shoreline.

The second important thing that happened in '63 was the effective launching of the Unified Port District. This agency was established by State Legislation to cope with the fact that the shore-side cities could not by themselves develop and operate the Bay as effectively as a joint agency could.

In the preamble to the legislation authorizing the Port District, it was declared to be the policy of the State o California to develop the harbors and ports of the State for multiple purpose use for the benefit of the people. To do this, the Unified Port District was chartered to acquire, construct, maintain, operate, develop and regulate harbor works and improvements on the tidelands and lands lying under the inland navigable waters of San Diego Bay, and to promote commerce, navigation, fisheries and recreation. No residences are permitted on the tidelands.

The Port District is governed by a Board of seven Commissioners appointed by the City Councils of their respective cities as follows:

From San Diego 3 Members
From National City )
From Chula Vista ) One
From Imperial Beach ) Member
From Coronado ) Each

The tidelands under the jurisdiction of the Port District comprise 3,800 acres, of which 2,400 are filled land and 1,400 are submerged lands. Private ownership is found only in a 3,000-foot strip of shoreline on the north side of the City of Coronado. The State of California controls about 1/4 mile of swimming beach at the State Park.

The remainder of the Bay shore is regulated by only two agencies. The Federal Government holds 23 miles of shoreline, and the Port District has 22 miles of shoreline. As a result, the Board of Port Commissioners effectively control practically all of the planning and development of th non-Federal tidelands and the Bay shore. Since their term of appointment is four years, they are able to exercise continuing and coherent control of these developments.

The Port District Act required that a Master Plan be prepared, and such a plan was approved in 1964. This plan recognizes the major influences in San Diego Bay, which may b grouped loosely as follows:

Military and Naval; the Navy started about 1914 to develop the bay.
Oceanography and Ocean Industries
Tourism
Commerce and Industry
Recreation

The military usage of the Bay shores is well defined through the Government's ownership of Point Loma; North Island; the Naval Training Center; the Marine Corps Recruit Depot; the Coast Guard Base; the Naval Supply Center;

the Naval Amphibious Base; the Naval Station; and the Naval Communications Station.

Oceanography and the ocean sciences are significant in and around San Diego Bay. The Scripps Institution of Oceanography has its operating base at Point Loma. The Lockheed Ocean Laboratory on Harbor Drive houses one of the nation's most effective deep-diving submersibles.

The Bissett-Berman Corporation and the ocean division of General Dynamics are located on the shores of San Diego Bay, while in the hinterlands within a few miles of the Bay a large number of very significant ocean research companies are established. Kelco Inc. produces more than 100 commercial products from kelp which is harvested in the ocean.

Westgate-California Corporation operates a large cannery. San Diego's fleet of high-seas tuna seiners constitutes approximately 92 major vessels. As an adjunct to recreation and tourism, San Diego Bay supports a large fleet of sportfishing boats. These in turn involve extensive activity in the catch and sale of bait.

In the interest of time, I would like to skip over, Mr. Chairman, the detailed discussion on tourism and industry. We are concerned about tourism. It is a major activity in San Diego Bay, and we are developing a two and one-half mile stretch of the Embarcadero at which the tourists and the Bay can come together.

Industry on the tidelands is rather limited. At the commercial basin north of Shelter Island a number of yacht and boat repair yards are located. Two of them are quite famous throughout the United States. There is considerable waterfront industry devoted to the construction and repair of all types of vessels along the shore between the Coronado ferry landing and the northerly limits of the Naval Station. Here is located the shipyard of the National Steel and Shipbuilding Company, one of the largest and busiest on the West Coast. It is a basic policy of the Port Commission that no industrial activity shall be located on the tidelands which does not need to be there; i.e., industrial functions which can be carried on at inland locations are not encouraged to remain on the tidelands.

Commercial shipping facilities were for many years limited to the piers on the Embarcadero near the foot of Braodway. Completion of the large modern marine terminal at Tenth Avenue in 1958 rendered these older piers obsolete, and it is planned that with the redevelopment of the Embarcadero as mentioned above, they will be modified to fit into the sphere of tourism. Ocean shipping into San Diego has reached such volumes that even the Tenth Avenue Terminal is no longer adequate, and south of the Naval Station on the east shore of the Bay a new marine terminal with an industrial area of approximately 120 acres is now approaching completion. This terminal and those which are projected for the shore development immediately south of it are in accordance with the Master Plan approved in 1964.

The potential for further commercial development of San Diego Bay is limited to the shoreline of Chula Vista. The shoreline around the southern tip of the Bay has been leased by the State to a private company for the production of salt and these leases have almost twenty years more to run.

Recreation is one of the most important activities in San Diego Bay. Shelter Island, with its public fishing pier and its yacht basin; Harbor Island, with its yacht basin and Spanish Landing Park; and Glorietta Bay, all offer centers for water-oriented activity.

The San Diego Yacht Club and the Southwestern, Silvergate, and Coronado yacht clubs, along with the Navy Sailing Club and an increasing number of private marinas, offer facilities in the Bay for almost 3,000 boats.

Further marina developments at Harbor Island will add another 1,000 boats. Public boat launching ramps, for which no fee is charged, are available at Shelter Island, Coronado, and Chula Vista; and early in 1969 a new and very large boat launching facility will be put into service at National City. A major item in the Port's development program is a large marina at Chula Vista. This work is being prosecuted on a continuing basis and should be completed in about five years, at which time it will accommodate 2,600 boats.

The Port District management, in seeking to develop the tidelands for the good of all the people as set forth in the basic State policy, has been increasingly concerned about wild life which would be displaced by indiscriminate development, especially in the lower Bay.

The salt evaporation ponds on State land at the south end of the Bay offer one of the West Coast's finest breeding and nesting grounds for aquatic birds.

With a view to retaining this habitat in perpetuity, the Port District has conducted a series of meetings of all agencies having an interest in the lower Bay, that is the power company that has a plant down there, the salt company, the local developments on the Coronado side, to see what might be done about maintaining a suitable environment for these birds.

Development of the new marina on the Chula Vista waterfront offers material which could be transported to the center of the Bay in a diked enclosure where these birds could live and develop without interference. It is expected that action to this end will be taken within the next few months.

In all of its operations, the Port District maintains a very close liaison with the San Diego Regional

Water Quality Control Board, through whose vigilant efforts the waters of the Bay are protected from any back-sliding. The Port District management considers that preservation of high quality water is vital to the successful discharge of the Port's over-all legal responsibilities.

To summarize, the deterioration of San Diego Bay through sanitary pollution was successfully arrested in 1963 when the Metropolitan trunk sewer system was completed. Since that time, the Regional Water Quality Control Board has, through close policing of drainage into the Bay, maintained an extraordinarily high standard of water quality.

We also operate Lindbergh Field and American Airlines who keep airplanes overnight there, and they get serviced there and washed before they take off in the morning. The wash water was going into the drains. The Water Quality Control Board made American Airlines put in special drainage so the wash water wouldn't drain into the Bay. That is really policing it.

At the present time there is an extensive study going on in the San Diego Bay to ascertain the effects of sanitary sewage from vessels discharged into the waters and conditions are such that we have almost a laboratory situation where the impact of vessel sewage can be carefully and effectively measured.

Control of development around the shoreline of San Diego Bay, other than the major holdings of the Federal Government and a very small amount of shore control by the State and private parties, is carefully regulated by the Board of Port Commissioners who are appointed by the five bayshore cities and who are involved with the promotion of commerce, navigation, fisheries and recreation. The Bay development is proceeding in accordance with an approved Master Plan which provides for utilizing the Bay for the benefit of all the people without undue impact upon the ecology and environment. The subdivision of the Bay shore in terms of military activities, ocean science and industry, tourism, commerce, and recreation is proving to be a well-balanced program. It is the feeling of the Port management that through centralized control and adherance to high standards of concern for the public welfare, management and development of San Diego Bay is proceeding in a satisfactory manner.

Thank you.

MR. McCARTY: Thank you, Mr. Davis.

I believe San Diego is one of the few really aggressive areas in terms of controlling pollution problems in our estuaries.

One question I would have regarding your statement about management of the San Diego Bay. You mentioned the Central Authority. To what central authority were you referring?

MR. DAVIS: The Port District Authority. The Port District and the Federal Government control practically all of it.

MR. McCARTY: Is there any particular aspect of management of San Diego Bay you feel should be modified or improved in some manner?

MR. DAVIS: Well, I would hesitate to say that anything we do couldn't be improved, but I think that one of our severest critics is here in the audience, and he will talk to you later.

That is Mr. DeLaney of the Water Quality Control Board.

We are quite concerned about this wildlife business because we try to say we are developers and not despoilers, and to be one without being the other, these days, sometimes requires walking a fine line.

MR. DE CAMP: Do you feel that you are in this field of maintaining wildlife habitats?

In other words, the salt water marshlands where the fish and birds do propogate; or is too much of it scheduled for changes?

MR. DAVIS: Well, we have this. The amount that is scheduled for changes is a matter of about three miles along the Chula Vista shore.

Beyond that, the power company has areas that never will be put to any other uses adjacent to their water intakes.

Beyond that, there will be 20 years we know the salt area will be left pretty much as it is.

Then as we develop a new area in the center of the Bay, which will be in perpetuity, we think, for the preservation of wildlife, we think that this is about what can be reasonably expected, considering the tremendous influx of people going into that area and all the things they want of the Bay.

We are trying to maintain a balanced program, trying not to give undue emphasis to any one element that would tend to drive out the other.

Incidentally, one of the points I left out of this discussion is that it is a basic policy of the Port District that there shall be no industry or no activity on the tidelands that doesn't need to be there.

Some of the Oceanography people thought they had to be down by the water. Upon reconsideration, they have relocated up on the mainland and keep their boats and equipment near the water.

The Port District does not encourage any industry that doesn't need to be there or any activity of any sort.

MR. DE CAMP: What progress are you making in the control of pollution from water craft?

I know you have the Navy vessels; but what about the 3,000 small boats?

MR. DAVIS: That 3,000 small boats brings you right into a first-class political problem because you say of 3,000 these boats you have got to have a holding tank, and you have got to have a pump and provide connections to take the sewage ashore, he says, "What are you going to do about the big aircraft carriers across the way with 5,000 people on them?"

So, while I am an engineer primarily, I cannot speak as a politician, but I think it is one of the worst political problems I have ever run into, and it will be very difficult to decide.

MR. DE CAMP: I am well aware of that problem with an aircraft carrier, but you and I both know that modifying aircraft carriers or any large naval vessels would be extremely expensive and difficult.

I am not up to date on what they are thinking about. Are you?

MR. DAVIS: Yes.

The Navy Department has two contracts underway, one on the East Coast out of Norfolk and one out of the Eleventh Naval District which are dedicated to the problem of doing something about sewage from ships because the Federal Government has to take a lead in all this, and the Federal Government is taking a lead, and one of the best ways is through the Navy.

Now, the Coast Guard already has built its vessels with holding tanks and mascerating equipment and chlorinating equipment. This is all right for big vessels where you have a systematic control. It is not so that it has been banned in some States as being ineffective for private craft.

The Navy, in terms of shore installations, is getting ready to construct sewage connections so that when the ships are modified there will be means of taking the sewage ashore and disposing of it.

Now, in our new construction at the 24th Street National City Marine Terminal we are building an extra sewage capacity knowing full well that sooner or later these merchant ships will come in there and we will either have to have the crews come ashore or we put connections into the ships because we recognize that in time ship discharges into the Bay will not be tolerated.

MR. McCARTY: Thank you, Admiral Davis.

MR. DAVIS: Thank you.

MR. McCARTY: Dr. Roberts.

While Dr. Roberts is preparing for his presentation I would like to read into the record the fact we have received one additional statement that will be part of the transcript from a Mr. L. G. Estes, representing the City of

Long Beach.

The title of the statement is "Public Meeting On Water Quality Management For Estuaries."

COPIED IN STATEMENT OF MR. L. G. ESTES, REPRESENTING THE CITY OF LONG BEACH, CALIFORNIA.

In response to notification for Public Hearings on Water Quality Management for Estuarine areas, the City of Long Beach is pleased to have the opportunity to present its views on this subject.

The City of Long Beach is geographically located on San Pedro Bay in the Southeastern portion of Los Angeles County. Bordering the City on the East and West are the San Gabriel and Los Angeles Rivers. These rivers together with their tributaries virtually drain the entire Los Angeles Metropolitan area. Situated between the mouths of the two rivers is six miles of highly sophisticated beach, water contact, and recreational sports areas. In addition, we have a series of inland waterways and bays which are dedicated to multiple recreational and marine oriented use. Contiguous on the West are deep water harbors; of the Ports of Long Beach and Los Angeles.

In view of the unique location of our beaches and bays, water quality standards and controls have been a matter of insurmountable importance and vital concern to the City of Long Beach. Accordingly, the City is on record as being strongly committed to the preservation and continued enhancement of ocean waters. The official position of Long Beach is set forth by order of the City Council in Resolution C-20133 which urges the attainment of high water quality control standards and activities as well as the recognition of all Long Beach water for multi-beneficial uses. A reproduction of the City Council's resolution is enclosed for your information.

There have been recent actions by the Los Angeles Regional Water Quality Control Board and State Water Resources Control Board, wherein all bay, harbor, and ocean waters, in the City of Long Beach were designated to recognize marine life as a beneficial use. We are of the opinion that the actions of these agencies is an important step forward in ocean water resources management.

In response to the five items set forth in the Guidelines, we are pleased to have the opportunity to make the following comments.

1. What are the values, esthetic, personal, recreational, dollar amount, etc., of an estuary?

The name of our City is "Long Beach." It goes without saying we consider this to be our greatest natural asset. Therefore, we have embarked upon, and completed to a substantial degree, a comprehensive shoreline development program. We cannot emphasize strongly enough our everlasting desire to maintain the existing level of water quality that has for many years blessed our shoreline, its sandy beaches, and recreational areas. To date, over 70 million dollars has been expended in developing the shoreline complex; which includes the modern Long Beach Marina and its associated water recreational sports areas. It is currently estimated that over 16 million people utilize these facilities annually. As the various elements of our development program are completed and available then for public use, our projections indicate that this number should increase at least two-fold. We therefore submit that these great natural assets are of inestimable value to the people of our community and the greater Los Angeles-Orange County complex.

2. Have they been damaged by pollution and how much?

Over the years pollution of our recreational waters has been a matter of constant concern to the City of Long Beach. We have indeed been fortunate to enjoy a relatively high level of water quality. However, since the volume and quality of the effluents of the Los Angeles and San Gabriel Rivers have a definite effect upon our receiving waters we have been interested in all sources of pollution into these streams. Accordingly, we are concerned with any degradation as a result of waste discharges, and dry weather flow, during the Spring, Summer, and early Fall as well as excessive amount of winter storm waters.

3. What do you think the future of our coastal zones should be?

It is the position of the City of Long Beach that responsible Federal, State, and local agencies should continue to carefully evaluate the estuarine and receiving waters, and establish appropriate standards for the preservation of this current use. It is recognized that certain harbors and estuaries must be dedicated to shipping. However, activities occurring in these areas should not be allowed to adversely effect the water quality, esthetics, or recreational uses, of contiguous estuarine waters which have been set aside for such purposes.

4. What are the best uses of our estuaries?

It is our feeling that the long-range use of estuaries should be carefully evaluated; keeping foremost in mind the preservation of high standards and water quality. Concurrently, it is urged that primary consideration be given to any increase in, and quality of, discharges which would have a degrading effect upon estuarine and coastal receiving waters.

5. What system of management, local, state, or federal

which would provide for development and protection of our estuarine sources?

The California concept of local regional boards with a state-wide agency for the formulation of State Water Quality Policy and Objectives is entirely satisfactory. We do, however, feel that the activities and certain legal authority for the operation of regional boards should be expanded. In this regard we would suggest that:

1. Since Southern California is a semi-arid region, the effects of dry weather flow upon receiving waters should be evaluated. Accordingly, long-range guidelines should be established to achieve this objective;
2. Legislation to provide for more stringent fines and penalties for permittees who fail to observe regulations pertaining to the discharge of waste matter should be enacted immediately at both the state and Federal level;
3. There be an expansion of surveillance, and enforcement programs, by State agencies involved with water quality control responsibilities.

We appreciate the opportunity of presenting our views on this very important subject and please be assured that the City of Long Beach will cooperate in any way possible in maintaining and implementing standards established for the preservation of our estuarine waters.

RESOLUTION NO. C-20133 A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF LONG BEACH URGING RECOGNITION OF MARINE LIFE AS A BENEFICIAL USE OF BAY AND HARBOR WATERS, URGING HIGHER STANDARDS OF WATER QUALITY AND RECOMMENDING IMPROVEMENTS IN THE ADMINISTRATION OF WATER QUALITY CONTROL AGENCIES

WHEREAS, it is the desire of the City of Long Beach that the waters of its bays and harbors serve multi-purpose beneficial uses; and

WHEREAS, as part of this policy of multiple use of public waters it is desirable to recognize the propagation, sustenance and harvest of fish and aquatic life as one of the beneficial uses of bay and harbor waters in the City of Long Beach; and

WHEREAS, in order to promote the multiple use of public waters the State and Regional Water Quality Control Boards should establish as a short term goal the enforcement of water quality standards in the bay and harbor waters of Long Beach consistent with the support of marine life and all other present defined beneficial uses; and

WHEREAS, Long Beach, in cooperation with major oil companies, is achieving great progress in pioneering new methods by which to dispose of oxygen deficient oil field brines, one of the last major sources of chronic pollution in Long Beach waters; and

WHEREAS, as oil field brines diminish as a source of pollution the harbor waters of Long Beach will become increasingly able to sustain marine life, it being the hope of Long Beach that 100% oil field brine disposal through reinjection may be achieved within three years; and

**WHEREAS**, subject only to limitations imposed by the effect on Long Beach waters of water quality standards enforced in adjacent, connecting waters, and subject to the normal affects on ocean water of the fact that circulation is limited in certain back-bay areas, Long Beach feels that as programs for the reinjection of oil field brines progress, Long Beach waters will consistently attain dissolved oxygen levels sufficient to sustain marine life; and

**WHEREAS**, water quality control policies should remain up-to-date in anticipating the enhancement of water quality made possible by these efforts, and should seize this opportunity to establish an ongoing system of testing, surveillance and enforcement of water quality standards and controls which will assure that the multiple needs of our community are served by clean water in the years to come; and

**WHEREAS**, certain organizational, staffing and technical deficiencies inhibit the present effectiveness of concerned state agencies in pursuit of these goals;

**NOW, THEREFORE**, the City Council of the City of Long Beach resolves as follows;

Section 1. That the propagation, sustenance and harvest of fish and aquatic life be recognized as one of the beneficial uses of bay and harbor waters within the City of Long Beach.

Sec. 2. That the concerned State agencies develop a comprehensive program of water sampling and testing for all ocean waters in this area including the Long Beach-Los Angeles Harbors and river outlets, and further that the necessary personnel allocations be provided to properly accomplish this objective.

Sec. 3. That stringent surveillance and enforcement of the quality of effluent discharges be diligently monitored to insure that permittees are in strict compliance with the terms of their permits, and further, that the necessary enforcement manpower be provided to effectively obtain this objective.

Sec. 4. That the necessary authority then be provided to rigidly control the emission of petroleum products from all ocean-going vessels including those of the Federal government, and further, that appropriate Federal legislation be enacted to absolutely control, enforce and prosecute violations.

Sec. 5. That the concerned State departments rigidly inspect and regulate all discharges in order to eliminate possible contaminants that might be emitted as a result of both inland and offshore oil production.

Sec. 6. That far more stringent fines and penalties be formulated for violations.

Sec. 7. That the concerned State departments more effectively coordinate their activities with regard to water quality control activities to protect, preserve and enhance ocean waters.

Sec. 8. That the City Clerk and the City Manager be, and are hereby, authorized and directed to forward certified copies of this resolution to all interested State and Federal administrators and legislators.

ADOPTED this 30th day of January, 1968.

(Signed by Mayor of City of Long Beach and City Clerk.)

STATEMENT OF
DR. EDWARD LEE ROBERTS, VETERINARIAN, LOS ALAMITOS, CALIFORNIA.

DR. ROBERTS: My name is Edward Lee Roberts, 3022 Kittrick Drive, Los Alamitos, California.

I will give you a qualified good morning. I don't know whether it is still raining outside or not.

As a Doctor of Veterinary Medicine with an interest in and concern for our shoreline resources, I am pleased to appear today to call your attention to Bolsa Chica Lagoon and Marsh. It is a very small area compared to the ones you have received a great attention on this morning, and certainly in comparison to the Los Angeles and San Diego Harbors.

Therefore, I think our concern is a little more magnified in that such a little body might be easily overlooked, especially when contemplating developments.

In fact, as I understand it, the translation of the name means tiny purse.

I would like to make it clear from the outset that I am here this morning as a private citizen and do not presume to represent myself as an expert.

But, on the other hand, contact with biological sciences does, however, afford a natural bridge to conversation matters.

The fact that there is growing interest and the fact that there is vital concern in the ecology and conversation is evidenced by the fact that we are meeting here this morning.

To a veterinarian, animal ecology as affected by expanding civilization can provide information on possible effects of environmental pollutions.

A preliminary ecologic study of Bolsa Chica has been undertaken by the Wildlife And Ecology Committee, Southern California Veterinary Medical Association, because "we need to know more about the ecology of the coastal zone -- an area rich in biota but highly sensitive to man's impact on the marine environment." (Edward Wenk, Jr. in Bioscience, Oct., 1968.)

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Further, "it has been increasingly demonstrated that the intricate strands that form the ecological web of life also enmesh mankind," (Ecology, Life Nature Library.)

First, let me briefly locate Bolsa Chica. The lagoon is within the property of the Bolsa Corporation, which is bounded by the Pacific Coast Highway on the south, Huntington Harbor to the West, Edwards Avenue on the north, and the Huntington Beach City Limits to the east. The entire property encompasses approximately 1900 acres of land and water. The surface area of Bolsa Chica Lagoon is about 37 acres, being approximately 400 feet long and 300 to 600 feet in width. A passage through Anaheim Bay affords the only outlet to the sea.

Much of the surrounding land is flat lowland, and part is marsh, with moderate to heavy marine or semi-aquatic vegetation.

There is a dam across the lagoon which apparently regulates tidal flow and maintains the portion eastward at a fairly constant level, which may be to the benefit of the oil pumping operations in that area.

According to a report entitled, "The Shoreline" by the Orange County Planning Department, September, 1968, the Bolsa property is traversed by the active Newport-Inglewood fault system running north and south, a factor to be reckoned with when considering the problem of salt-water intrusion into freshwater supplies.

A multitude of shorebirds may be found feeding and moving about the area at almost any time. They include the dowitcher, western gull, sandpiper, curlews, avocets, clapper rail, phalaropes, stilts, herrons, and a number of others. Not being a qualified birder, I have to rely entirely on observations of a field man.

It has been crudely stated that "birds don't pay taxes," but how does the author of that statement propose to replace with tax money the esthetic value of the sight of these animals in their natural surroundings and the fact that their activity often indicates the wealth of food material lying below the surface?

At first glance, it may not seem terribly urgent to man whether these species live here, but their presence or absence in that ecological niche will determine the success of other forms of life associated with them, and these, in turn, will have a marked effect on still others.

I think the word "ecology" is being used with ever-increasing frequency these days, and I am not sure that everyone who uses it realizes really what an impact it has in its fullest sense. When you consider the ecology of man it includes almost everything you can think of, and speaking on the subject of ecology, it then becomes somewhat similar to discussing minor problems in cosmology.

Already, counts of the clapper rail in a nearby marsh area of the U. S. Naval Weapons Station show a decided decrease in numbers in recent years as man crowds into their environment.

The Bolsa Chica area also provides rest and feeding grounds for important migratory water fowl traveling south along the Pacific flyway. I have seen numbers of shovellers, scaup and ruddy ducks there in recent weeks. There aren't many such havens left for these birds that provide interest and sportshooting recreation. The National Wildlife Federation tells us that more than half of America's wetlands have been lost by draining, dredging, filling and pollution.

In fact, last week National Wildlife Week chose as their theme "Provide Habitat," and used this poster which some of you may have already seen, to bring this to the public's attention.

The role of coastal wetlands as nurseries for fishes has already been discussed by a knowledgeable person such as Dr. North. However, in addition to food fishes that may spend a part of their life there, we must also consider the fact that some smaller species that may be used as bait are also there and, again, in the ecological food chain where these smaller creatures may be a step below the food fishes that we are more familiar with, as they disappear, then we find that commercial fishermen have had to move farther out to sea to get sufficient catches. Certainly this is an impact on the commercial interests, if there ever was one.

In addition, habitat for clams, shrimp, crabs, snails and other aquatic life is provided by the marsh. Bolsa Chica is one of the few of these unique natural resources remaining in Southern California.

Dredging, particularly when combined with concrete bulkheading, will destroy it.

We hear repeatedly that man will turn to the sea to solve his food problem eventually. But the role of the marsh as a nursery having been so well established, exactly where are we going to turn when the time comes that he realizes he needs additional protein sources and turns around and the marshes are all gone?

The ecologic study mentioned previously has only begun, but as it progresses more information regarding Bolsa Chica's flora and fauna will become avilable.

Turning to other facets of the area, just across Pacific Coast Highway is Bolsa Chica State Beach, a facility that receives a surprising amount of use for outings, even in winter.

One proposed marina plan would require cutting at least one channel, 600 to 800 feet in width, directly through the beach.

(Demonstrating chart.)

Gentlemen, this is a blow-up of a diagram presented in one of the local newspapers some months ago with a proposed master general plan for the Bolsa and Anaheim Bay areas.

This is the channel I have just referred to cut through the State Beach property.

Now, this particular plan also would have involved the creation of a new channel, Huntington Harbor, since the sailboats there, they must go through the Weapons Station property to get out. Also, for a time there was a proposal for a nuclear desalting plant on an island to be created in the Bay.

Pacific Coast Highway, subject to realignment in the General Development Plan, at present provides definite scenic relief along this section of the coastline, with the lagoon and its birds on one side and the Pacific Ocean on the other.

All of these factors help to give us an area of natural escape from the urban environment so many leaders hasten to tell us lies at the route of major social ills. Man does in fact need and enjoy such features of nature. Witness the growing popularity of camping and its attendant activities, and the increasing attendance at zoos and oceanarians in Southern California where the public for a moment glimpses some of the other creatures that share its planet. Bolsa Chica and its glimpses of nature are already in Orange County's "backyard" now.

Assuming the value of Bolsa Chica on these various points, let us consider some factors involved in plans that have been proposed for its development.

For salt-water intrusion is a very real problem, already in existence, but potentially much greater if dredging and/or seawater channel construction is carried on. The potential of saltwater intrusion in the Bolsa Chica area has been investigated by the U. S. Geological Survey in cooperation with the Orange County Water District in a 1967 report. This subject was also covered in California Department Of Water Resources Bulletin Number 63-2.

The Bolsa property was at one time one of five locations suggested for an airport site. Although on a larger scale, a choice between wildlife refuge and jetport near Minneapolis-St. Paul is reported in the February-March issue of National Wildlife and points out some hazards to be borne in mind -- noise, air pollution, human activity, drainage problems as mentioned by Admiral Davis and of course all the human activities and resultant wastes.

The use of nuclear power as once proposed for the Bolsa Island site raises some serious objections. Unlike San Onofre, it is near metropolitan areas of Orange and Los Angeles Counties.

Prevailing winds are onshore. Thermal pollution could result from discharged coolant waters. The above facts were brought out by Dr. Jack E. McKee, Professor of Environmental Health Engineering, California Institute of Technology, speaking before the Oceanography section of Town Hall. In addition, proximity to the Newport-Inglewood fault system must be remembered.

Any type of marina development will permanently diminish the total salt marsh area remaining in Southern California. Obviously, population pressure for housing and recreation is high in Orange County, but the continued exploitation of natural areas is contrary to the best interests of urban residents with their requirements for open-space recreation when one considers that "recreation" does not automatically imply the need for improved areas for the use of mechanical aids such as boats and motorcycles.

Considerable numbers of people walk, observe, photograph, et cetera, for recreation. Such activities require open space, such as Bolsa Chica. "California doesn't have an open space problem -- it has a people problem," so spoke Mr. John C. Williamson, Executive Director, Joint Committee on Open Space Lands, California Legislature.

In view of all the considerations thus far presented, I urge that any and all planning for the Bolsa Chica area be undertaken with the greatest care, and that a substantial natural wildlife preserve with adequate provision for maintaining the salt marsh and lagoon environment must be included in those plans.

It is easy to set aside an isolated piece of salt land, but if the other factors necessary for it, the other factors necessary for life, are not present, it might as well not be considered.

I would like to show you one additional chart. This is purely hypothetical. It is an artist's conception of something that could be done with an area like Bolsa Chica to preserve some of the area.

(Demonstrating on chart.)

Pacific Coast Highway in this area with a State Beach down here. Perhaps development a little farther inland with hiking and walking trails.

This does not mean the entire area has to be set aside. Obviously, we must realize that many interests are involved, and I think that, in answer to a question that has been raised by both Mr. McCarty and Mr. De Camp who want to know what the Federal government can do, I have a suggestion, and it would be to either establish or coordinate a meeting ground for all persons who have interest in these areas, whether it be in a forum-type of forum or public meeting.

I think that all too often the conservationist is at home reading his magazines or out tredging along the Bolsa Chica Marsh, the real estate developer is primarily engaged in his particular interest, and although they rail at each other by mail or in the newspapers, there really isn't much opportunity for them to meet face to face.

If everyone is as honest as they say they are in recognizing the need for a coordinated effort such as the Admiral outlined for San Diego Bay, then I think more opportunities of this type must be afforded because, as we have already observed, when we are put on the spot after we have complained for five typewritten pages or so, and when we are asked what can be done, it is a difficult question, and we don't have all the answers yet, particularly when somebody says, "Well, how do you know that harm has been done?"

It is a hard question to answer, but in my personal opinion, if the government would like to do something on a grassroots level that could be beneficial in this area, I would suggest an opportunity for providing an opportunity for face-to-face meetings between all people who have an interest in our coastal water resources.

Thank you very much.

MR. McCARTY: Thank you, Dr. Roberts.

MR. DE CAMP: Doctor, you put me on a spot, but that was actually the purpose of these meetings, to provide that forum, but you can't force people to show up at a meeting of this nature.

We do not know, for example, how many real estate developers are here today, but I do know, and I have heard several conservationists speak already.

The problem to me is, while the conservationists are speaking here, the real estate developers are going ahead with the developments, and California has a severe problem as to the actual construction of the wetland areas when they are gone.

You can have pollution, but it is very difficult to reclaim a marsh which is now a marina or a housing development.

The San Francisco people saw that problem, and they created a moratorium on development until they had a development plan.

The State of Massachusetts has passed a law which gives the State authority to protect the wetlands, the marsh areas such as you talked about in Bolsa Chica. Most of this authority currently exists and does reside in the State and is delegated in terms of zoning to local areas and to county authorities and municipal authorities.

DR. ROBERTS: So, I think the coordination is the key word, and whether or not in fact I don't feel that it should necessarily be a Federal function, however, since the question came from the Federal government, I addressed the answer there.

The human nature being what it is, unfortunately, someone has to sound the alarm before people are jolted into action, and they were practically at the eleventh hour in San Francisco before they got into the act.

The fact that they were able to do it in such a large area and such a large number of interests involved, I think deserves a lot of commendation; but the public hearing we are having here today is fine.

I think I was referring more to meetings that might be coordinated and carried on as a continuing function at local levels to bring these people face to face because time does not permit you to allow debate at these meetings and, yet, I think there will have to be some yelling and screaming and hair-pulling before they get all simmered down and decide to jointly manage these areas with which we are so concerned.

MR. DE CAMP: There are experiments going on, one in Florida, where they are attempting to develop an area for -- which would be called a suburban development and still preserve the ecology of these areas.

I think it takes the interest, as you point out, of everyone to sit down together and work these things out, but it can be done.

DR. ROBERTS: I think if the Federal government wanted to provide an impetus it could come as a motivating force or a coordinating force. I don't propose that it be done by some agency or something like that, but I know there is a close working relationship between you and such associations as the National Wildlife Association, and certainly they have groups that go clear down to the local level.

MR. CROOKS: Dr. Roberts, did you say these lands surrounding Bolsa Chica are private lands or primarily private lands?

DR. ROBERTS: My understanding is that the areas surrounding is owned by principally one corporation. The politics of it I am not familiar with, but that statement is from the Shoreline Manual put out by the Orange County Planning Department that I quoted in my report.

MR. CROOKS: It seems to me that this is probably one of the major problems, the smaller estuaries such as you speak of on the one hand where you have private ownership, and on the other hand you have public benefit, and it is hard to get the two together long.

DR. ROBERTS: Of course it is, and since it is small, it is awfully easy to draw attention to San Francisco Bay and Los Angeles Innerharbor, but as we found out -- just yesterday I was speaking to one of my neighbors and I told him I was going to Bolsa Chica, and he said, "Bolsa what?"

MR. McCARTY: Thank you, Dr. Roberts.

I would like to call on Mrs. Ellen Stern Harris.

STATEMENT OF MRS. ELLEN STERN HARRIS, LOS ANGELES, CALIFORNIA

MRS. HARRIS: My name is Ellen Stern Harris.

I represent the public at large from the Los Angeles Regional Water Control Board.

I understand you are looking for solutions rather than just a restatement of the problem. We, too, are looking for solutions. I share Dr. Wheeler North's concern. I share Mr. Gaskill's and Dr. Roberts' statements which were so eloquently made. All of these are among my concerns.

I could tic off all the problems along our shorelines, but you know probably far better than I what they are all the way from Enceinada to Morro up to past San Francisco Bay.

I think the San Francisco Bay is our most hopeful sign of all. The B.C.D.C., I think should set a model.

I would like to urge this Panel to recommend the formation of a California Shoreline Commission comparable in structure to that of the B.C.D.C. I think they have tested for us an outstanding model incorporating local, county, regional and state and federal agencies in a cooperative effort.

I feel that our shoreline is California's chief capital asset and, therefore, of considerable concern as a national asset, both as a scenic and recreational resource and potentially now as a great future protein source.

All of these are resources to safeguard for now and for the future, this asset.

I would urge you to call a halt to all offshore drilling, whether it was in the tidelands or in the outer continental shelf. I think that the threat to our already diminished Estuarine environment has been clearly shown. I think we can afford no further threats. I think it is a question of values. I think it is a question that the people have shown their anguish over what has occurred.

Small items like the Malibu lagoon is being threatened. The major items like the major estuaries in California and the Bay at Newport are being threatened.

I am in hopes the State Lands Commission will consider, and, hopefully, reverse their most recent decision in that case.

Getting just into the water quality, I was at La Jolla yesterday where Scripps held a seminar. The threat of DDT has been known, to some extent, but now the effects have become so apparent that we were told yesterday of DDT having first made the shells on the waterfowl fragile and brittle and have made extinct the State bird of Louisiana.

You talk about protecting water quality should be the topic of this forum today, but, as you so well know, if you can't protect the estuaries there is no water there for you to protect. With the luxury housing tracts being developed at Newport and then with the Army Corps Of Engineers charging ahead despite great protests on the part of the public -- a group of surfers wrote and told me of their concern, and when you get surfers to write, you have really got some concern. This charge of the Army Corps Of Engineers, I would urge you to find some reorientation for their effort to become constructive rather than continuing in this destructive course which has been taken and annually, and therefore, it will be extended whether to the over-all detriment or benefit of the people.

I would like you to consider the possibility of reclassifying the Los Angeles Harbor into its original category of a marine estuary. I would like to know what the possibilities would be of restoring and reclaiming former estuaries that we have lost through poor management and mismanagement.

I think that would pretty well cover the points that have not already been taken care of and covered by Dr. Roberts and Mr. Gaskills' statements here today.

MR. McCARTY: Thank you, Mrs. Harris. Thank you very much.

MRS. HARRIS: Thank you.

MR. McCARTY: I would like to call on Mr. C. L. Martin.

STATEMENT OF C. L. MARTIN, CHAIRMAN, MARINE RESOURCES COMMITTEE, CALIFORNIA WILDLIFE FEDERATION.

MR. MARTIN: My name is C. L. Martin. I am the Chairman, Marine Resources Committee, California Wildlife Federation.

Mr. Chairman, ladies and gentlemen:

This will be a very short presentation.

I would like to speak briefly of the lagoons in San Diego County, estuaries that I am somewhat familiar with. These are: Sorrento Lagoon, San Dieguito Slough, San Elijo Lagoon, Batiquitos Lagoon, Aqua Hedionda Lagoon, Buena Vista Lagoon, Loma Alto Slough and Santa Margarita Lagoon.

Of these eight lagoons along our county coastline several are very polluted and the rest to a lesser extent. Others here today can better define the amount of damage, perhaps even put a dollar value on it.

I just want to point out that the scarcity of water and wetlands in Southern California is extreme, further loss of this resource must be resisted. Our lagoons are heavily used by birdlife presently. The San Diego Regional Water Quality Control Board is successfully correcting the pollution problem in the coastal lagoons, increased usage by birds will follow as the problem is resolved.

There is one potentially important resource that should not be overlooked while you are evaluating the beneficial uses of estuaries -- and that is habitat for the spawning and nursery grounds for marine fishes. I have talked recently with several top biologists and each of them feel that the above-mentioned lagoons would be a most attractive habitat for fish if there was a way to keep them open year round. To my knowledge a comprehensive study of this type has not been published.

This brings us to the primary purpose for this presentation. It is respectfully requested that a study be funded for at least two lagoons in San Diego County over a period of two to five years to determine the value of these lagoons as spawning and nursery grounds for marine fishes when open to the ocean.

The lagoons are closed most of the time. Right now some of them are open, but most of the time they are closed so that fish cannot migrate in and out.

Thank you very much, Mr. Chairman.

MR. McCARTY: One moment, Mr. Martin.

You suggested a study be made. Do you have any suggestions about who conducts such a study or who you think should conduct such a study?

MR. MARTIN: I feel that your group would make me look like an amateur in this respect. I think your group probably could come up with a much better answer.

This is a good place to initiate or to stimulate the idea or get something started on it.

I don't see it as a big study or an expensive study, but I see it is as something to keep a couple lagoons open and one or two biologists to follow it and see what happens, and from this we have a good, solid basis to know what we are talking about with respect to estuaries, and this is one more use of resources tied in with the estuary concept.

MR. CROOKS: Mr. Martin, does the problem that these lagoons are not open year round rank as much importance in your mind as wastage? Is this as much a problem or maybe moreso to the lagoons themselves?

You mentioned at the start that many of these are polluted or are becoming polluted.

I was wondering if the fact that they are not open year round is as much of a problem as the fact that they receive wastes.

MR. MARTIN: It is a little difficult for me to answer. I think Mr. Delaney will do a better job answering that question when he makes his presentation.

The wastes, as I understand it, Mr. Delaney may or may not tell you, that the wastes problem would be lessened somewhat. So, the two are somewhat related.

Thank you.

MR. McCARTY: Thank you, Mr. Martin.

I would like to read into the record the receipt of another statement that will be made a part of the proceedings here today. The statement will be received from Mr. John S. Bradshaw representing the University of San Diego and the Torre Pines Wildlife Association.

I would like to call on Mr. George M. Dawes.

STATEMENT OF GEORGE M. DAWES, CITY OF NEWPORT BEACH, CALIF.

MR. DAWES: Mr. Chairman, ladies and gentlemen in the audience:

I am George M. Dawes, the Harbor Coordinator for the City of Newport Beach. I might explain that a bit because it is a new position for the City of Newport Beach. I am the first incumbent. We do have a Harbor Department there, which is a county harbor department, but I am a city employee, and I am an administrative assistant to the City Manager who devotes all his time to the harbor and coordinating the various departments, the Public Service Department, the Public Works Department as part of the responsibility.

The statement that I am about to read was approved by the City Council of the City of Newport Beach yesterday at their regular setting.

The City of Newport Beach is a coastal city with a population of 46,000. It hosts approximately seven million visitors a year on its six miles of beaches and its harbor berths approximately nine thousand boats. The City has thus far been fortunate that there are no major pollution problems confronting it at this time. However, the City is interested in keeping its finger on the pollution problem and doing anything feasible to maintain high water quality standards or to improve the present standards.

In this connection, the City of Newport Beach has long held a stand against the drilling and production of oil off its beaches. The City Charter prohibits the production of oil within the City limits. The City has also been protected by the Cunningham-Shell Act which was enacted in 1955 and provides that the coastline between the Santa Ana River and the Mexican border shall be protected against off-shore drilling. In substance, this Act requires that before any lease can be made by either the State or a local governmental agency for oil development on tidelands within the protected area, the State Lands Commission must review and approve the proposed lease. If approval to drill is granted, it is subject to the requirement that all wells must be slant drilled from an upland location. In March, 1967 an unsuccessful effort was made by the oil interests to have the Legislature repeal the restrictions of the Cunningham-Shell Act. Newport Beach expended considerable effort toward defeat of this attempt. We anticipate that continued strong lobby attempts will be made to repeal or weaken the protection of this Act.

On December 12, 1968 there was a public hearing conducted in Newport Beach by the California State Assembly Committee on Natural Resources Planning and Public Works. During this public hearing, the City of Newport Beach again made known its stand relative to offshore drilling. Many witnesses appeared at this public hearing, including Mr. Henry W. Wright who represented the Western Oil and Gas

Association. Mr. Wright made two points: the first point was that there was basically no danger of pollution in offshore drilling. When reminded that there had been pollution from offshore drilling before, he stated that in his opinion that this was due to the negligence of the companies concerned and that modern technology had enough safeguards to preclude any further problems in this regard. He further stated, in response to the Newport Beach position that we did not desire offshore drilling in the vicinity of Newport Beach, that he did not think that the major oil companies had any real interest in oil in the area of Newport Beach and the remainder of the area covered in the sanctuary by the Cunningham-Shell Act.

It is also notable that amongst those testifying was Capt. A. J. Bush of the U. S. Coast Guard who is Captain of the Port in Los Angeles-Long Beach. Capt. Bush went to great length to explain that there was no present means of containing massive oil pollution of the type that has characterized that off of Santa Barbara. Scarcely two months after the hearing, and despite Mr. Wright's testimony, the disaster occurred at Santa Barbara and, as predicted by Capt. Bush, the massive oil slick was certainly not contained despite the heroic efforts of Lt. George Brown of the U. S. Coast Guard who was the on-scene commander of the efforts to control the situation in the vicinity of Santa Barbara. As if this were not enough, on the 13th of February the City Council discovered that the State Division of Lands of the State of California had granted permission to several oil companies to do some geological exploratory drilling off the shores of Newport Beach, barely over one mile from the harbor entrance.

In the light of previous efforts to undermine the Cunningham-Shell Act, the City Council can view these so-called exploratory drillings as nothing but a precursor to commencement of oil production in the sanctuary now afforded between the Santa Ana River and the Mexican border.

The position of the City of Newport Beach is that it is opposed to any new offshore drilling in the sanctuary provided by the Cunningham-Shell Act. It is further opposed to any drilling in Federal lands offshore of this sanctuary. In regard to the second part of this position, the Council is convinced that any drilling from adjacent Federal lands will inevitably result in the State subsequently authorizing drilling on its lands rather than see a valuable resource be drained at no profit to the State.

The City Council is also of the very strong opinion that producing oil companies should be required to follow the standards for safety established by the State of California and that these companies should be subject to inspection by the State of California as well as Federal authorities. This position is based on the fact that the State of California standards are considerably more rigorous than those of the Federal Government and that those producing companies who have adhered to the State of California regulations have not had the type of problem exemplified by that just offshore of Santa Barbara. The City is also firmly of the opinion that the oil companies must be required to provide the necessary equipment to contain any massive oil pollution and must be required to take the steps necessary to clean up after any incident that would result in pollution.

The City of Newport Beach recognizes that oil is an essential commodity. The City is also aware that there are Federal reserves of oil established in pools well inland of our shores and suggests that there should be a vigorous study to determine if the inland oil reserves can be used in the immediate future to serve our petroleum needs and, in lieu thereof, designate our offshore areas as oil reserves. The disastrous effects of blow-outs on inland wells are significantly localized and the time gained before our reserves have to be tapped can be used to advance the technology of offshore drilling.

While massive oil pollution presents the dramatic problem, as stated previously the City of Newport Beach is greatly concerned about maintaining and enhancing the quality of water within Newport Harbor. There is a plethora of information on socio-economic, ecological and demographic trends. We have heard a great deal about protecting presently undeveloped estuaries. But in Newport Harbor, we are presented with the problem of an already highly developed harbor. We are interested now in such subjects as pollution surveillance systems, technology and equipment for the protection and enhancement of water quality and ideas for the future multiple use of our harbor and other estuarine areas in the immediate vicinity of Newport Beach. We would hope that the National Estuarine Pollution Study would progress beyond general statements and would provide detailed operational data for the benefit of those communities who are faced with the same sort of problem that we are.

Are there any questions?

MR. McCARTY: Thank you, Mr. Dawes, for a very timely statement.

I don't believe we have any questions at this time.

Next I would like to call on Mr. Charles P. Greening.

STATEMENT OF CHARLES P. GREENING, Ph.D., CHAIRMAN, FRIENDS OF NEWPORT BAY, NEWPORT BEACH, CALIFORNIA.

DR. GREENING: My name is Charles Greening, and I am here as a representative of Friends Of Newport Bay, a citizens organization interested in protecting the public interest in the tidelands and other waters of Newport Bay.

We would like to call to your attention some of the past, present, and possibly future uses of Upper Newport Bay, as related to water quality. We will consider quality of the water to include salinity, tidal mixing, biological productivity and other characteristics as well as simply presence or absence of pollutants.

Within the memory of people presently living near the bay, it was a natural tidal estuary with extensive aquatic plant growth, particularly on the tidal islands and in the upper reaches, where it merged with an existing fresh-water marsh. It was a veritable paradise for ducks and geese which wintered on the waters among the reeds, for countless shorebirds which fed and waded in the shallows on the tidal mudflats, and for a variety of fin and shell fish, some of which were harvested and sold to local restaurants. Its value as an open space was then less apparent, since it was surrounded by other open spaces. And its value as an educational and recreational resource was limited by the small local population and the presence of other estuaries nearby.

More recently the value of the Upper Bay to the county and to the entire region has skyrocketed as a result of the destruction of many other estuaries, the "improvement" of much of the surrounding land, and the vastly increased population in the vicinity. At the same time, the quality of the estuary has been eroded by the diking of the upper reaches of the bay for salt production, by the added load of pollutants from storm drains, agricultural sprays, extensive powerboating and general urban conditions, and by the over-crowding of some species of wildlife due to destruction of comparable habitats nearby.

In spite of the somewhat reduced quality of many aspects of the Upper Bay, it receives heavy use from the millions living within easy reach. Thus we find that, although navigation over many parts of the bay is restricted due to diking, hundreds of residents use the remaining public water for power-boating and water-skiing. And, although fishing in many parts of the bay is impossible due to diking, or useless due to eradication of species, thousands of students from public schools, colleges and universities use the bay each year on field trips or from permanent research installations to study the remaining marine life. And, although many species of birds and animals formerly found in the bay in great numbers are now absent, like the black brant, or extremely rare, like the Canada goose, Audubon chapters from all of Southern California schedule field trips to this, the last large tidal estuary between Morro Bay and Mexico. Over one thousand persons (some from as far away as San Diego and Barswot) visited the Upper Bay on a recent rainy Saturday to view the birds, the plants, and other manifestations of nature on a two and one-half hour nature walk sponsored by our group.

In short, the value of the Upper Bay to Southern California residents has increased sharply, even though the quality of the bay as a public resource has declined somewhat.

Both the quality of the water in the bay and the nature of its use by the community are, in theory, under the control of the citizens of the state and the Region, through elected and appointed official bodies. But pressure on the bay is sure to increase through population growth, rising land values, demand for water-related recreation, and the apparently irresistible urge to "develop" everything. Many of these pressures are in open conflict.

One possible course of events is clearly forecast by the series of financial and legal moves, extending back fifty years, involving the Irvine Company and the Orange County Board of Supervisors. These events point toward the eventual transfer of most of the Upper Bay tidelands from public to private hands, with subsequent dredging, filling and construction of a complex of commercial enterprises and costly dwellings which will be worth hundreds of millions of dollars to the Irvine Company. The public of Southern California will be left with small parks at the mouths of the flood control channels (where buildings cannot be economically built) and a biologically non-productive, bulkheaded channel and lagoon dominated by the overwhelming private interests on the filled tidelands. Many difficult questions remain unanswered in the plans released to date:

Where will the bass and halibut sought by sport and commercial fishermen come from if their rich, shallow nursery in the Bay is deepened and rendered sterile?

Where will the pintail and the widgeon prized by hunters in Washington, Wyoming or Alberta come from if their wintering grounds in the Bay are bereft of food and made noxious with gasoline slicks?

Where will the marine science students at UCI and Cal Tech, at Cal State Fullerton and Chapman College, at Corona del Mar High and the Santa Ana public schools (and over two dozen other educational institutions now using Upper Newport Bay) have to go to see a living, working estuary if the Bay becomes another Huntington Harbor?

Where will the heavily burdened runoff from 80,000 acres of Orange County land be spewed when the great natural machinery of the estuary no longer reduces it to nutrients for marine life forms?

These and other similar questions have broad impact on the quality of the Southern California environment. They have no answers in any plan or program yet made public by the Irvine Company or the Board of Supervisors or the County Harbor District. The lack of answers to the questions, or even serious consideration of them, bodes ill for the public interest in the Upper Bay.

Another, happier course of events can be dimly seen as a possible future alternative. The Constitution of California proclaims:

> Article XV   Harbor Frontages, etc.
>
> "Section 1. The right of eminent domain is hereby declared to exist in the State to all frontages on the navigable waters of this State.
>
> Section 2. No individual, partnership, or corporation, claiming or possessing the frontage or tidal lands of a harbor, bay, inlet, estuary, or other navigable water in this State, shall be permitted to exclude the right of way to such water whenever it is required for any public purpose, nor to destroy or obstruct the free navigation of such water; and the Legislature shall enact such laws as will give the most liberal construction to this provision, so that access to the navigable waters of this State shall always be attainable for the people thereof.
>
> Section 3. All tidelands within two miles of any incorporated city, city and county, or town in this State, and fronting on the water of any harbor, estuary, bay, or inlet used for the purposes of navigation, shall be withheld from grant or sale to private persons, partnerships or corporations....."

The public trust so clearly envisioned by the framers of the Constitution has already been seriously eroded in many parts of the State. Apparently valueless marshes and tide flats have been sold or otherwise transferred to private hands in years past, to turn up later as potential or actual marina sites worth many millions of dollars to the owners and developers. The maintenance of a public trust in the face of relentless economic pressure of this magnitude requires constant vigilance on the part of citizens, elected officials, and the court.

In the case of Upper Newport Bay, most of the steps necessary to remove the tidelands from public ownership, fill them, and allow a private corporation to develop them for profit, have already been accomplished. But it is still possible to halt and reverse this process, given timely, forceful action by the elected officials and the courts. If the Upper Bay were to be acquired and maintained by a public agency in such a way as to preserve and even enhance its present natural qualities, none of the forlorn questions listed above would have to be uttered. The people of California and the Southwest would be richer with each passing year in that which is most important in the long run -- the quality of life.

I would like to show, if I could, about a dozen slides of Newport Bay.

MR. McCARTY: Yes.

We have still a number of people left who have indicated they would like to speak this morning.

If there are any who could come back this afternoon or this evening or in the morning, we would be pleased if you would do so. Otherwise, we will have a recess after these slides.

DR. GREENING: If it is all right, we will show the slides this afternoon. I have placed the slides in the projector, but they are all upside down.

MR. McCARTY: I understand the slides are upside down.

So, we are going to show them this afternoon after the two o'clock reconvening.

Is there anyone who feels that it is necessary that they make a statement right now?

If not, we will recess the meeting at this time and reconvene again at two o'clock.

(Whereupon, at 12:20 p.m., the meeting recessed, to reconvene at 2:00 p.m., the same day.)

## AFTERNOON SESSION

2:00 p.m.

**Chairman McCarty.** Ladies and gentlemen, I would like to reconvene this public meeting on the Federal Water Pollution Control Administration's Estuarine Pollution Study.

Before I ask Mr. Greening to continue, I would like to read into the record several additional statements that will be forwarded at a later date to be used as part of this transcript.

We will be receiving them from Mrs. Richard Cass, representing the League of Women Voters of California; Dorothy Tidwell, San Fernando Valley Audubon Society; Mrs. Joan Leonard, Los Angeles Audubon Society; William J. Verna, Pierpont Landing, who has already submitted a statement entitled "Has the Death Warrant Been Signed?"

I want to thank those people at this point for presenting statements, or agreeing to present statements here today.

Mr. Greening, I believe, has some color slides he would like to show us to wind up his presentation this morning.

Mr. Greening.

**Mr. Greening.** Thank you.

I am Charles Greening of the Friends of Newport Bay, completing the testimony that I started before lunch.

If we could have the lights dimmed?

This is a general view of Upper Newport Bay. I think that one of the remarkable characteristics of this bay in the midst of an urban area, within the city limits of a city, is the feeling of spaciousness and serenity that it presents in its present state.

Next slide, please.

Another view from a different vantage point, a different time of day. In the foreground you can see some of the rafts of water birds which are present in the bay almost any time from August or September on through April.

Next slide, please.

Now, the bay is -- when you get closer to it -- has a great many aspects which aren't obvious at first glance. This is a section of the tidal flats, with the tide out.

These tide flats have been referred to this morning by Dr. North and others as an extremely important and biologically productive area. They turn organic wastes into food for marine organisms.

Next slide.

You can see here a group of gulls which are resting on the tide flat in the background.

Next slide.

And here is a black-necked stilt feeding in shallow water which will, a little later, be exposed when the tide goes, and at that time, some shorter-legged bird will take over the same area.

Next slide.

This is a picture taken from the top of one of the bluffs, and it shows one of the tidal islands in the lower part of the upper bay. These islands are dry except at extremely high tides when a considerable amount of water runs through and over land.

Next slide.

The islands provide the kind of privacy that is required for species such as the great blue herons, such as you see here, which tend to winter in Newport Bay.

They are also the habitat of many of the rails, and other very shy birds which are bothered by a lot of competing traffic

But on these islands they tend to be undiscouraged.

Next slide.

Another use for the bay is as an educational setting for citizens' groups. This is a group that assembled one Saturday morning last fall for a two-hour tour of the bay, and spent a great deal of time looking at the bird life in the bay, and also --

Next slide.

-- listening to presentations. There is Dr. North holding forth on the various organisms that are in the bay water itself

As I mentioned this morning, we have had a number of these tours, and the last one that we held, a week and a half ago, we had over a thousand people in attendance.

There are large numbers of people, in other words, who have an interest in an estuary for something other than boating

Next slide.

This is an example of some of the vegetation you will see if you start examining the edges of it in detail.

Next slide.

On the banks, a little farther up, are spring wild flowers and next here is a bluff looking down past some ice plant and in the background you can see the edge of the bay water.

Next slide.

Here is one of the present high density residential developments on the bluffs above the bay. This use of the bay, using it as a visual open space, a visual backdrop for homes there without the direct influence of these people on the bay floor and on the fauna itself has apparently been popular for a long time.

Next slide.

Here is a shell midden -- one of many Indian sites -- which is currently being worked on around the shores of Upper Newport Bay, and they tend to pick the same type of sites -- up on the bluffs -- and away from the shallows.

They also managed to get a good deal of food from the bay, as you can see from an examination of the shells.

Next.

Now, in the lower part of the bay, there tends to be much greater concentrations of people-use, right down at the water, and this is a natural thing, because the desire of people to have water recreation.

However, -- next slide.

It presents problems of policing in order to try to keep the pollution of that body of water within reasonable bounds.

Next slide.

The City of Newport Beach has attempted to police the harbor and keep the water clean. This is an example, looking down into the bay water, however, at a point where tidal flushing is incomplete, and the prevailing on-shore breezes tend to carry all floating material back into these odd corners of the bay where they stay and collect.

Next slide.

And also, the shore line, the mud flats and so on, in the same kinds of protected corners, tend to gather all kinds of debris from the heavy use of the bay itself.

One of the problems with the proposed development of the upper bay at a very high level of intensity, is that the same kind of lack of tidal flushing is likely to be a much more severe problem as you go three or four miles from the bay entrance, and again, have the condition -- in the summer, in particular -- of strong on-shore breezes from noon until evening, which will carry all debris up into the area which is temporarily designated as a swimming beach.

I think there are some incompatibilities there.

Next slide.

I would like to suggest that there are ways of developing the bay that would permit people to have as close contact as they like with the natural environment as is seen in this picture, and yet retain for the viewing pleasure of all of the people who live on the bluffs around the bay the same feeling of openness that characterizes it now, and has for as far back as we know.

Gentlemen, we would like to urge you to do everything in your power to retain for public use this natural resource and to protect the qualities of Upper Newport Bay which make it of inestimable value to our region.

The active intervention of State and Federal agencies will be required immediately to reverse the present trend toward the delivery of most of this resource into private hands, and its ultimate destruction as an ecological entity.

The Constitution of California provides the tools to correct these actions which have been taken.

Thank you.

CHAIRMAN McCARTY: Thank you, Mr. Greening, for your very detailed discussion of the Upper Newport Bay.

MR. GREENING: Any questions?

CHAIRMAN McCARTY: Mr. De Camp, do you have any questions?

MR. DE CAMP: My question would be: Since this is State-owned, what could the Federal government do about this?

MR. GREENING: It seems to me that since the State, according to the Constitution, does have -- it is no longer State-owned, by the way, because the State transferred the title to the county quite anumber of years ago -- but as the Constitution states, the State still retains the right of eminent domain, so they could regain it at any time.

And the constitutional phrasing, it seems to me, is quite clear that this right is there, and not only there, but it should be exercised by the State.

I don't know what kind of moral persuasion could be brought on the State by the Federal government. It doesn't appear to me that new tools are needed to prevent this particular kind of erosion of the public beach.

Now, there are a lot of other problems connected with drainage in the bay itself, which may require new legislative tools, but I would only -- the only thing I can recommend here is an immediate searching look at this kind of estuarine development by groups such as the ones who are making this current study to focus attention on the fact that the intent of the Constitution is being evaded in this case, and a number of others in the State, and at least bring it into the limelight in the hopes that public opinion and public action will correct some of these actions.

CHAIRMAN McCARTY: Thank you, Mr. Greening -- and Mrs. Greening, who helped with the showing of the slides.

Next I would like to call on Mr. Paul E. Giguere, who represents the California Department of Fish and Game.

STATEMENT OF PAUL E. GIGUERE,
WATER PROJECTS COORDINATOR,
STATE OF CALIFORNIA DEPARTMENT OF FISH AND GAME,
REGION FIVE,
107 SOUTH BROADWAY, ROOM 9012,
LOS ANGELES, CALIFORNIA 90012

Mr. GIGUERE: Mr. Chairman, and members of the Committee, I am not here to make a statement.

As you know, the Department has already attended many committees and given prepared statements.

Also, Captain Putman will be on the program later.

But it occurred to us this morning that in the course of the discussions, they were speaking of a good many places like Las Batiquitos and San Elijo and Malibu Lagoon, and the like, and maybe to some of the members of the Committee, and certainly some of the people attending, these are pretty difficult to visualize.

Since we had some aerial photos slides available, I thought -- with the Chairman's permission -- we could at least put these on very briefly for the edification of all of those present.

Perhaps some of these areas will be more meaningful after this. Mr. Hein -- Ronnie Hein, of our department -- will handle the slides.

MR. HEIN: My name is Ronald Hein of the Department of Fish and Game. I hope that you people will bear with me here. This was a rather "crash"project here, and in about the last 45 minutes from a couple of hundred photos that we have, why, we quickly assembled this brief coverage of our bay, estuary, lagoon type habitat along our Region Five boundary of our coastline.

This extends from Santa Barbara County south to the Mexican border.

I hope I can keep something straight here now. This should be the Goleta Marsh, which is located in Santa Barbara County just below the University of California at Santa Barbara Campus.

Next slide.

And this is a ground view showing the wet lands in that slough again.

I think if you just move along at a set pace, we can get through these.

This is another view of the Goleta Slough area.

The is the lagoon on the Devereaux Ranch.

This is the Carpinteria Marsh, otherwise known as the El Estero Marsh.

CHAIRMAN McCARTY: Excuse me, Mr. Hein. Do you have any idea what the dark areas in there might be?

MR. HEIN: This is kelp. This was taken before the oil spill.

I believe this is the Santa Clara River.

The next one should be the Port Hueneme area.

And this is the Point Mugu Lagoon that is located on the Naval Station.

This is the Malibu Lagoon.

This is a ground shot of the Anaheim Bay complex on the Seal Beach Naval Weapons Station.

This is another view of the same general area. That is the Orange County-Sunset Aquatic Park development in the background.

This is Bolsa Chica complex, which is just south of the Huntington Harbor development.

This is another view of the same area.

This is an aerial view of the Santa Ana River drainage.

This is the Upper Newport Bay, of which Mr. Greening has just shown you a number of pictures. This is another portion of the Upper Newport Bay. This is one of the several islands that are inundated under the extreme high tide.

This is the Upper Newport Bay still.

This is the San Joaquin Marsh, which is located just inland from the Upper Newport Bay. In the upper left-hand portion of the photo you can see the salt ponds that are located in the extreme upper end of Newport Bay.

This is the San Juan -Doheny area.

This is the San Mateo drainage at Camp Pendleton.

This is the Santa Margarita drainage, also on Camp Pendleton.

This is another view of the Santa Margarita drainage.

This is the San Luis Rey River drainage.

And this is the Buena Vista Lagoon.

And this is the Agua Hedionda Lagoon.

This is the Batequitas Lagoon.

This is the San Elijo Lagoon.

This is the Del Mar Lagoon.

This is the extreme south end of the San Diego Bay, showing the salt works in the right-hand portion of the bay.

This is the most important and the last remaining portion of the bay with any significant wild life.

And this is the Tia Juana River at the extreme south end of the coast at San Diego.

And this is all. Thank you.

CHAIRMAN McCARTY: Thank you very much for your very fine presentation on some of the lagoons and estuaries of the Southern California coast.

Do you have any questions?

MR. DE CAMP: No.

CHAIRMAN McCARTY: I would like to call on Mrs. Peta J. Mudie, next, please.

STATEMENT OF MRS. Peta J. MUDIE,
RESEARCH ASSOCIATE AT THE SAN DIEGO MUSEUM
OF NATURAL HISTORY,
RFD BOX 20-F, DEL MAR, CALIFORNIA 92014

MRS. MUDIE: My name is Mrs. Peta Mudie, I am a research associate at the San Diego Museum of Natural History.

I am here today, to represent the Torrey Pines Wild Life Association, which is a local conservation group dedicated to the protection of the unique Torrey Pines and its associated wild life.

The subject of my presentation is the pollution of the small Southern California lagoon and its subsequent recovery following the restoration of tidal action by simple but effective methods.

This presentation is also the story of how to kill a mosquito using a bulldozer. Since this is, in essence, what was achieved, Los Penasquitos Lagoon, which is sometimes incorrectly called Sorrento Lagoon, is situated near the northern limit of San Diego City.

The western half of the lagoon lies within the boundary of Torrey Pines State Reserve.

From the park trails the lagoon provides a panoramic view of the broad open stretches of water and marshland and winding creeks.

The estuary offers a resting site for thousands of shore birds and waterfowl that migrate along the Pacific flyway. Many birds also find a home in the marshland, including the great blue heron and gallinule clapper rail.

The salt marsh provides the ground cover for a wide variety of small mammals, and is a summer browsing area for mule deer.

In common with other Southern California lagoons, however, Los Penasquitos Lagoon tends to become cut off from the ocean for long periods of time. This is aresult of a combination of low inflow during the rainless summer and the deposition of sand at the mouth by alongshore currents and storm waves.

Once closed, evaporation from the lagoon results in a highly saline condition in which the water salinity may rise to twice that of ocean water. This high salt concentration kills many of the aquatic organisms and thus, substantially reduces the value of the lagoon as a wild life feeding area.

Since 1960 record urbanization and development of the areas adjacent to the lagoon has led to a dramatic rise in the amount of sewage effluent discharge into its waters. By 1965 the wetted area of the lagoon had doubled an approximately 68 acre feet of effluent overlay the denser, saline lagoon water, and it formed large ponds in areas that once had been salt flats.

Although the effluent was secondarily treated, it carried a high nutrient load and resulted in a 300 per cent increase in the nitrate concentration of the water, and about a thousand per cent increase in the phosphate.

This nutrient enrichment promoted the development of aquatic plants and blooms, and extensive mats of algae formed on the surface. Dense growths of cattails and bulrushes began to block the channels, and mosquito and midge populations proliferated.

Within two years, an inch thick layer of sludge had formed as a result of this eutrophication and the dissolved oxygen content of the bottom water fell to a critical level of less than two milligrams per liter.

Following these adverse changes, the County Health Department found it necessary to conduct an extensive spraying program in the lagoon to reduce the mosquito population that had become a public nuisance and health hazard.

More than 15,000 gallons of chlorinated hydrocarbon insecticide was sprayed on the lagoon in a single year. In addition, 150 pounds of herbicides were applied in an attempt to facilitate mosquito control.

In economic terms, mosquito spraying alone required over 1,200 man hours of labor over and above the cost of the spray.

In terms of environmental pollution, the potential dangers of biocides are well known and were brought into sharp and alarming focus at the symposium held yesterday by Scripps Institute of Oceanography on "Man's Chemical Invasion of the Ocean."

Other adverse effects following the eutrophication was strong hydrogen sulfide odors that brought complaints from visitors and residents, and parents forbade their children to boat on the lagoon.

A census of the aquatic fauna in 1966 revealed that no living mollusks or crustaceans remained in the lagoon, although numerous shells littering the banks indicated that there had once been an abundance. Only five species of hardy fish survived in the highly nutritive water.

Concern over the situation prompted the Torrey Pine Wild Life Association to investigate a means of alleviating pollution. The cheapest short term solution seemed to be to restore tidal action in the lagoon by bulldozing a channel through the sand at the mouth. But no support could be found from local authorities for such a simple solution to the problem.

However, in January, 1967, heavy rains filled the lagoon to overflowing, and the city road maintenance crew made a small cut in the sand bar at the mouth. This was sufficient to release the lagoon water which then eroded away a channel at the mouth, and the entrance remained open for the rest of the year.

By the following spring, however, a low sand bar had begun to build up, and this eventually cut off the tidal flow. This time the Wild Life Association managed to persuade the Parks and Recreation Department to bring down a small bulldozer and a D-16 Caterpillar to work on the bar.

Several abortive attempts were made to establish a permanent channel by cutting through the beach, but each time these failed.

Finally a method was worked out for impounding the water at high tide and releasing it shortly before a low spring tide. The erosive action of the escaping water was sufficient to carve out a broad channel which worked its way toward the north side of the mouth, and carried a substantial portion of the sand out to sea.

The tidal flow has continued in this estuary up to the present time. The whole bulldozing operation called for about 70 hours of work at a total cost of approximately $1,500.

Of this, it was estimated that about two-thirds of the time and money had been wasted on the earlier phase of unnecessary channeling and redundant sand transport.

The consequences of the lagoon opening were quite dramatic. The nitrate and phosphate content of the water fell to between a quarter and a half of their previous values, indicating that the tidal flushing removed a substantial portion of the nutrient load from the lagoon. The unpleasant odor disappeared, and the children enjoyed swimming at the mouth of the lagoon.

Mosquito control has been reduced to a few hours of spraying in small areas of ponded water near the high tide level. The mud flats now support populations of jack-knife, Gaeper, and soft-shelled clams, as well as rock oysters, scallops and crabs.

Six species of shrimp have been recorded and a total of 17 species of fish.

The fish include large numbers of imported species such as California halibut, corbina, opaleye, and spot fin croaker.

Waterfowl abound in the inland areas of the estuary, and large flocks of shore birds feed on the mud flats at low tide.

The history of Los Penasquitos Lagoon shows that, contrary to the opinion of local engineers, it is economically feasible to maintain a tidal flow in Southern California small estuaries. The benefits of that tidal flushing are that it eliminates the nuisance problem of the mosquitoes and odors that are associated with these lagoons.

It also alleviates the necessity of adding large quantities of biocides to our already contaminated ocean waters. It converts the coastal cesspools into sanctuaries for wild life and provides nursery grounds for fish that will later form part of the ocean catch.

The general public attitude towards the small lagoons between Newport Bay and Mission Bay is that they are worthless as such, and simply occupy valuable low land for development sites.

I would like to suggest that greater consideration should be given to restoring the potentially valuable natural environment of these lagoons and converting them into green belts in the already overpopulated coastal areas, rather than taking the alternative route of exploiting them as oceanic Disneylands or artificial jungles of industrial development.

We have a few slides just to illustrate these points.

This is the first slide -- these are slightly out of order, but just to show the extensive mats of filamentous algae which formed following the increase of discharge of sewage effluent into the lagoon, this is in midsummer and the mat is beginning to decay, and you see some of the vegetation which has invaded the channels.

This is the highly sulfide exude -- exuding thick sludge formations which form in the bottom of the channel.

This shows the sandbar which formed at the mouth at the end of 1967 after a year of tidal action in the lagoon. This simply shows the two small bulldozers that worked after the channel was closed and the water was ponded.

The dam in front of the channel was then cut, and here is a bulldozer pushing sand into the channel which was carried out to sea.

This shows the channel shortly after being cut -- showing the erosive action of the water at work. The channel eventually moved northwards, and moved the whole sandbar from the northern section of the mouth, andeventually exposed the pilings right down to their beds.

CHAIRMAN McCARTY: Thank you, Mrs. Mudie for a very concise and illuminating statement on these small lagoons.

I think your experience has been very extensive.

One moment, please.

MR. CROOKS: Mrs. Mudie, do you have any indication of the magnitude of the expense that would keep this open now, or do you expect it will stay open now?

MRS. MUDIE: It seems to keep open for a year at a time, but it probably will require some work each year, following the spring and winter high tides and so on.

MR. CROOKS: I see.

MRS. MUDIE: But in economic terms, it seems that much more money is going to the mosquito spraying program, which has a high rate of potential hazard to our wild life.

MR. CROOKS: I see. Thank you.

CHAIRMAN McCARTY: Thank you again, Mrs. Mudie.

Next I would like to call on Dr. Roy D. Gaul.

STATEMENT OF DR. ROY GAUL,
WESTINGHOUSE OCEAN RESEARCH LABORATORY,
LA JOLLA, CALIFORNIA

DR. GAUL: My name is Roy Gaul, and I am with Westinghouse Electric Corporation Ocean Research Laboratory in San Diego, California.

In regards to Dr. David Smith, who had discussed with me the aspect of his remarks which are closely related to my own, both his remarks and mine as presented hereafter are our own opinions, and do not necessarily represent those of our corporations.

I am going to focus my remarks on the coastal waters and the coastal environment which is limited on the one hand by the estuarine areas which have been subject to discussion this afternoon, the coastline itself, and the near shore waters out to the region of the edge of the Continental Shelf.

I would like to point out that as California assumes its position of eminence within the nation, an ever increasing proportion of its economic wealth will be derived from the sea.

The exploitation of this rich coastline has tended to endanger the basic environment and is not planned and regulated as evidenced by some of the earlier presentations.

We must look to our future needs as California grows and recognize from the start that the near shore waters will, of necessity, be used for many purposes, some of which will be in ever increasing conflict if steps are not taken now to resolve foreseeable problems.

I would like to briefly run through some of the kinds of conflicting near shore uses that I might draw to your attention as background for some of my subsequent remarks.

There is a rather large recreational impact upon the economy of the State of California which cuts across items such as sport fishing, which incidentally is a very large and rapidly growing business in this state.

For example, in 1963 it has been computed that the average angler spent $91.62 per year which amounted to a total expenditure of around $170,000,000.

Sailing and motorboating are obvious, and they have been discussed at length. Even such mundane water sports as waterskiing and surfing have a reasonable impact.

For example, in 1967, over 17,000 surf boards were sold, bringing a total revenue of around $2,700,000.

Then of course there are all manner of camping and recreational activities -- wild life walks and so forth -- and of course there is the ever present image and feel of the sea, to which it is very difficult to attach some real commercial value.

Among the commercial uses that abound in California are obviously the fisheries, and especially the off-shore part, which in the region of California alone in 1965 amounted to about 200 million pounds and some 35 per cent of the total land in the State of California.

One nearly unique industry, and very important to the State of California, is the kelp harvesting industry which has received considerable attention after the Santa Barbara exercise, and incidentally, the value of the kelp is by no means restricted to the direct harvest, as I am sure Dr. North mentioned to you this morning.

Then of course the subject of salt is somewhat forgotten, although it should be pointed out that in San Francisco Bay, alone, it counts for about one third of the total salt production of the world.

And there is the ever-present tendency and desire for harbors, which conflicts with the preservation of some of our wild life, and one of the most abundant resources of the ocean of course is that of fresh water, itself.

One of the scientific uses that may be of interest and which receives little attention is the basic study and research that is being done that has a direct bearing on both the present and the future and of the ecology of the near-shore area.

There are all manner of waste disposal uses and this of course is three cuts of our attention in what the attitude is towards the first, the estuary, and ultimately the near-shore waters of the deep ocean.

It might be worthwhile to point out some of the kinds of future uses that we might anticipate, or at least have a tendency towards. And there are such far-out items as the use of the peat moss, the control of climate by creating an artificial upwelling over the shelf, the direct manipulation of the natural environment for a variety of uses including aquaculture, underwater habitation and of course extensive possibilities of drawing fresh water from the sea, and even the possibilities of using the nutrients from sanitary waste disposal directly for increasing the productivity and the usefulness of the near-shore waters.

Then of course another area of concern in which is at the forefront at the moment, are those manners of impingement upon the natural environment which can turn disastrous, such as oil spillage and nuclear reactor waste -- reactive materials -- and major storms and loss of airplanes, and so forth.

Now, the only purpose of this run-through was to give you a feeling for the juxtaposition of uses which in my estimation must be dealt with in a constructive and reasonably unified manner, if we are to accommodate the rising population, if we are to accommodate the present uses over extended periods of time, and if we are to recognize that California is one of the most rapidly growing and obvious areas of stress on the near-shore environment.

I would like to quote from the recent report of the Commission on Marine Science, Engineering Resources as follows:

> "Concentrated comprehensive effort to survey coastal zone resource, gather basic data and help to rectify years of inattention will not meet the need for detailed, specific understanding of local opportunities and problems. Meeting these needs requires systems for continued monitoring of coastal zones and vigorous support for basic applied research and local areas."

Now, this excerpt from the report was related to the avowed need for an extended research program at the Federal, State and local levels, related specifically to the coastal environment.

Let us examine for a moment the situation of California. It is readily evident that the California coastal zone and estuaries have suffered under the stress of conflicting uses.

There is no prospect for a reduction of conflict whic is inherent in our social and economic structure. On the contrary, the tendency will be towards increased variety and an increased tension in these conflicts.

Accordingly, we must optimize the use of our coastal zones to permit intelligent, comprehensive and unified management. One essential requisite for such management is continuing a quantitative description of the environment including its dynamic processes and living constituents.

A suitable program of research and environmental monitoring is not now existent in California, even though the State supports a variety of related survey programs.

The three purposes for providing background, ecological, physical, chemical and the processing of information on the near-shore environment. One is to aid in water resource management; another is to provide a reference for assessing damage to the environment; and the third is a basis for regulation.

Therefore it is suggested that in the State of California, particularly, and especially in Southern California, that the presence and expansion of these conflicting uses makes imperative a reasonable and much expanded program for environmental monitoring of near-shore waters.

What is the nature of the monitoring program that I have in mind? One major objective would be to separate the natural -- should I digress for a moment, and focus on the most recent incident in the public attention? This is the situation you have heard about.

It should be pointed out that apart from the extent of the damages and the nature of the damages, that in respect to the natural waters of the region, in the ecology between the Channel Islands and the mainland, one of the most difficult problems now before us will be that of establishing what the state of the environment and ecology was prior to when the oil was spilled.

We have very limited information in this respect, and in this particular case, it is perhaps one of the better demonstrations of the dynamic nature of the environment.

It is noteworthy, for example, that the oil spill occurred towards the end of the second week of some of the heaviest rains in the last 70 years. And there had already been a significant injection of contaminants, of sediments and of surface runoff water, and all of its associated materials, into the environment prior to the oil spill.

Since we do not have available to us the information which could be derived from sort of a monitoring effort that would tell us what happened to this physical environment just before and during the natural change that was going on, we are ill-disposed to establish in any degree of certainty what was happening due to the oil spill itself, except in the more obvious cases, that is, immediately adjacent to the mainland itself.

So that one of the major objectives of a coherent, unified monitoring program would be that of establishing what is the natural background which is, indeed, highly variable in most localities of the Southern California waters.

It is suggested that it is in both the national and local interest that the region of Southern California from Point Loma to Point Conception is a reasonable first cut for a study area.

The reasons are severalfold. One is that oceanographically it is a tractable region for study, that is, the region is large enough to encompass some of the major circulatory and ecological systems, and hence complete enough to be able to follow and estimate the extent of processes associated with the changes in environment.

The second is that we have an existing and growing population which reflects the industrialization and urbanization of an affluent and moving society.

The size of the area, whereas it is large enough to encompass an oceanographic regime of interest, it is small enough to be tractable so as to stay within reasonable limits of dollar input and facilities.

The third is that we have -- the fourth is that we have an observational background for this area which is one of the best in this country. We also have research talent available of the first magnitude in the Southern California area.

These characteristics, combined, indicate that the initiation of the study in the Southern California area is both tractable and would be extremely valuable, not only to the region itself in terms of its management, but also as a pilot study, pilot effort in relation to some of the programs that are needed elsewhere.

You might ask, "What kind of questions would be posed by such a study? What would be the main points of concern?"

Evaluation of the physical environment processes is obvious as it relates to the changes in the eco-system, and there is no point at this juncture to going into the details of such a study. Such a study has received rather wide consideration among the Southern California scientists and has appeared in various proposals of the international biological program.

One point of considerable concern is a reasonably unified and compatible and standardized approach to the monitoring of pollution input.

Another would be that of dealing with coastal modification as it relates to the ecology overall.

It seems to me that one of the most significant problems that we have is the reaction of local groups to local problems as opposed to the initiation of reasonably larger scale mechanisms for coping with the problems before they arrive.

There is also, of course, the fact of sustaining biological harvests, both commercially and for sports purposes, with the notion that we may be able, under proper conditions, to do even better than nature.

A word on this program, that is, this suggested program in relation to the standardization of measurements. It is a fact that there are a wide variety of studies conducted by the State of California. The State of California, I think, is one of the most advanced in relation to the treatment and handling of its coastal waters, and in an attempt to deal not only with conservation, but also tne beneficial uses and reuses of the coastal environment; however, these generally have suffered from a high degree of localization, due to both problem interests, as well as failure of funding, and that therefore the nature of measurements and observations has been tuned to the requirements of the particular problem at hand.

If it does not fall into the particular position of a harbor study or a marsh or a thermal pollution problem associated with nuclear reactors. As a result there is precious little benefit to be gained throughout a region of perhaps 200 to 250 miles of coastline that can be derived from various observations made over the last 20 or 30 years at a particular point.

One of the problems here is the standardization of the measurements method, be it ecological, physical or geological.

In addition to that, the standardization of procedures so as to make the statistical significance of observations taken over long periods of time, meaningful in relation to the overall region of the study. There is a wide variety of suggestions on this, of course, varying from a large corporate aerospace approach of total systems approach to managing somebody's problems to that of developing specialized measurement techniques between individual scientists.

I don't think that either in the total answer, and I don't wish to dwell on the point, except to point out that this is a major shortcoming in our present environmental study and monitoring of Southern California.

I would like to draw attention in relation to organizational finances for a program -- programs of this nature within the State of California -- another quotation from the Commission report: It says "The Federal, State and local governments share the responsibility of developing the coastal zones, a plan which reconciles or, if necessary, chooses among competing interests and potential long-term values.

"Effective management to date has been thwarted by the body of governmental jurisdiction involved, the low priority accorded by State governments, the dilution of responsibilities among State agencies and the failure of State agencies to develop and implement long-range plans."

I would like to say only that my observation and experience in the field of oceanography and geopolitics prompt me to endorse such a pronouncement.

Also, the Commission has pointed out that the States must be the focus for responsibility and action in coastal zones, that the State is the central link joining the many participants, but in most cases the States now lack adequate machinery for that task, and an agency of the State is needed with sufficient planning and regulatory authority to manage coastal areas effectively, and resolve the problems, including those of competing uses.

Along the same line, I would like to draw attention to a quotation from the preface of a volume entitled "California in the World Ocean", which was from the proceedings of the public conference called in 1964 by the State of California.

"The use of the tide and submerged lands along our 800-mile coastline, its adjacent bays and estuaries, is under our State constitution a major development and responsibility of State government."

I only want to add my endorsement to these particular -- to these two observations on the part of the Commission and that particular conference, and point out that there is, indeed, an apparent lack of State structure to accommodate a unified effort of the sort that I have suggested, and that this is the common concern of the Federal and State governments.

I do not wish to offer any suggestions at this moment, since this is under study by the Governor's Advisory Commission for the State of California, and it has received ample attention by the President's Commission on Marine Science, et cetera.

Thank you.

CHAIRMAN McCARTY: Thank you, Dr. Gaul.

Any questions? Mr. De Camp?

MR. DE CAMP: I was very interested in your quotes on the matter. This special report -- despite what the report said -- I think they left out a very vital fact -- or didn't point out why the States have not provided, in some cases, effective management of their coastal zones, is not always a multiplicity of agencies or an inability to do so, or anything else, but because the public of the State -- the voter -- hasn't requested it.

In other words, the State does have the ability to do these things, but no pressure has been brought to bear.

DR. GAUL: Yes, I concur with this. Although the Commission report, I think, did touch on this facet of public apathy, and also predicted, and accurately so, that there would be more meetings such as those that they were having at the moment, which are in part having an effect on stimulating just such public action.

Furthermore, it is my observation that the rapid press of the people to the coast, for whatever reason, is creating a set of conflicts wherein the public voice is being heard.

For example, in the State of California, which has some 90 per cent of the Southern California population within 20 miles of the sea coast, and one of the more recent experiences which the power companies have been running into is that heretofore, rather minor, vociferous but always overridable voices, such as the conservation groups and those concerned with plants and animals and what-not, have created a significant impediment for getting approval of nuclear power plant installation.

I think this is a manifestation of this rise in public interest which is going to become more so in the future.

Obviously, the very intense and perhaps even emotional public reaction to the oil spillage off Santa Barbara, and it can be interpreted in no other way, indicating a very rapid increase in public interest.

The point, I think, is, however, that the State of California, which is seeking through its existing mechanisms to regiment or organize for the improved management of the coastal resources, is not yet there, and all I am doing is adding my endorsement to the very strong move in that direction.

CHAIRMAN McCARTY: One last question, Dr. Gaul.

You made a very convincing case, I believe, for the need for additional research, and you also pointed out the conflicting uses.

We are concerned with one thing. We have been trying to seek in these public meetings some suggestions or advice on how we might go about placing a value on the various kinds of uses, particularly those that are not normally amenable to other value judgments -- recreation, and this sort of thing.

Have you in your experience encountered any particularly novel or unique schemes for placing values on such uses?

DR. GAUL: Well, there is a traditional one, of course, and that is related to the Gross National Product, or the Gross State Product, and there are all sorts of exercises available for this.

In my own opinion, there are no pat formulae that can be developed for such value judgments, and they can only be developed within the political structure in which we normally operate.

I don't really think that one can do much more at the present time than try to set up a management structure through which the resources can be handled, or the popular notions of what is valuable can come into play, for example, one can attach no particular value to -- as near as I can tell -- one can't attach a dollar value to simply the presence of the sea.

The people tend to have some reason for aggregating on the seashore, but what is the dollar value?

CHAIRMAN McCARTY: Thank you very much.

I would like to call on Mrs. Elsie Kroesche. She indicated she perhaps would like to make a statement -- is that "perhaps" a "yes" or "no"?

MRS. KROESCHE: Well, I think I was playing it by ear, and I thought if there was something important that I would like to respond to, I would like to have the opportunity.

But so far I am not prepared. If I might send in a written report before the 14th of March, I will be satisfied with that.

CHAIRMAN McCARTY: Thank you. Thank you very much.

Next I would like to call on Captain W. H. Putman of the California Department of Fish and Game.

### STATEMENT OF CAPTAIN W. H. PUTMAN, FISH AND GAME CONTROL CAPTAIN, REGION FIVE, CALIFORNIA STATE DEPARTMENT OF FISH AND GAME

CAPTAIN PUTMAN: Thank you, sir.

As you know, my department made a formal presentatio in San Francisco on the 18th.

CHAIRMAN McCARTY: Yes, I know.

CAPTAIN PUTMAN: I thought I would tell the people here that this had been done. I am here to give a supplementa type of presentation.

If my understanding is correct, you more or less requested a set of slides to see what the problem is on the coast; is that right?

CHAIRMAN McCARTY: Yes. We were interested in the overall picture.

CAPTAIN PUTMAN: Fine. Thank you.

Each year in the Los Angeles Harbor here at San Pedro Bay, both my officers and myself conduct approximately 250 oil spill investigations a year in this one harbor.

We normally make somewhere between 50 and 100 criminal cases against corporations, tanker skippers, and individuals.

We annually wipe up from the harbor complex somewhere between five and fifteen thousand barrels of petroleum products.

The slides you are about to see are selected out of a grouping to give you an overall picture. Now, this doesn't mean that what you will see here is a daily occurrence. If it was, it would be a pretty bad thing.

This is a pretty gross set that we have, but it will give you an idea.

But if you can remember in your mind that we are doing 250 investigations a year, somewheres along this, you will run into one of these that you will see here. And there may be more than one.

CHAIRMAN McCARTY: One question: This 250 investigations covers what geographical area?

CAPTAIN PUTMAN: Just San Pedro Bay -- Los Angeles Harbor.

MR. DE CAMP: Not Long Beach?

CAPTAIN PUTMAN: Yes. Long Beach-San Pedro Harbor area. Call it San Pedro Bay.

MR. DE CAMP: You do have a lot of oil refineries --

CAPTAIN PUTMAN: Yes, sir.

MR. DE CAMP: -- in the San Pedro area?

CAPTAIN PUTMAN: Yes, sir. Right.

Crank her up.

Since we are talking about oil-type of work, this is oil on Signal Hill. There is another shot of an oil well on Signal Hill, and you see that the oil will move down the storm drains into the harbor area.

This is a more modern type of an operation. This is Mobil Oil Company in Long Beach. On the left you can see the oil spilling out of the producing hole where they have los a sucker rod. The oil then falls onto the ground and into the harbor.

This is Mobil Oil again.

This is a turning basin in Long Beach.

This is oil from MU4D, that belongs to the seller here. This is another shot of it. You can see the extent of the pollution from just one oil seller.

This is the Thumbs Group. This is in Long Beach. This is approximately ten barrels of crude. We have a problem here with the overproduction of gas. The gas-drops were too small, and they were blowing oil through the gas-drops into the air, and into the water.

In the lower left-hand corner you can see a little red line down there. This is an attempt to control an oil spill on what we would call a "normal open sea." We had a ten knot wind, and you can see it doesn't work, and it hasn't worked in the open sea.

This is Standard Oil. This is Island Esther. It had an oil spill off of Seal Beach.

This is Standard Oil at another tower having an oil spill. You can see the Coast Guard 40 Boat in the foreground. The oil seep is towards us. This is black oil from Standard Oil.

This is Signal Oil and Gas off of Huntington Beach -- having a problem there. You can see the oil drifting off.

Here is another problem of Signal Oil and Gas. The problem in this case was the placing underneath the platform of cuttings from the well. Evidently it got off into the water. They used diesel stock to free the bit, and in working going down the hole, they dumped the cuttings and the diesel stock under the platform, and what you see here is the diesel oil reaching the surface and drifting to shore.

That's our patrol boat in the right foreground, taking up evidence.

This is a shot of maybe 10 -- 15 barrels of oil going ashore from the Thumbs operation in Long Beach. I got to explain to you gentlemen, you are going to see a lot of little things in the corner. This is a part of a helicopter that I am really good at taking pictures of. This is a Coast Guard helicopter that we were using, and all of these shots are evidence shots, so if we don't get any beauty in this thing, these weren't taken for that purpose.

After the oil is produced, we have an oil-field brine formed on the Long Beach side of the harbor. In 1958 we had something like 80,000 barrels of brine being dumped into the Long Beach Harbor.

Currently, up to last year, we have had pretty near half a million barrels a day of brines. However, Long Beach, or a cooperative agreement with the oil industry, is now beginning to pump most of these brines down the hole into the producing sands, and we think this is the right way to go, and we think that within a year or so we should accomplish this, and all brines will be down the hole, according to a cooperative agreement between the industry and the City of Long Beach.

This is the Union Pacific Railway. We have a big oil field down there, and these are the brines going into the Harbor.

This is oil operators on Signal Hill. This is Long Beach oil developments, oil brines, going into the pier -- Pier Able -- is in Los Angeles -- or Long Beach.

This is the Thumbs. They have overflocculated brines, and they are now cleaning the harbor waters of the conglomeration of floc and oil.

This is the Union Pacific Railway losing oil-laden brines into the Harbor. You can see it sweeping under the oil-spill boom and across the Cerritos Channel.

This is Long Beach Oil Development. We have a problem with their brine disposal, and here we are getting heavy color and oil into the Long Beach Harbor.

This is what brines look like after it gets away from the boomed area and goes out throughout the Cerritos Channel area.

Now, this is Slip 2 at Long Beach, and you can see the sport fishing boat moving through the oil-contaminated surface.

This is our refinery operation.

This is Mobil Oil Company on a lateral to the nearest channel. The oil is trying to be trapped there and be soaked up by straw, so it could be eventually removed.

Now we fly down Dominguez Channel. This is Atlantic-Richfield. You can see an oil-spill boom in the foreground -- and they couldn't hold it there. Just above the oil-spill boom you see a little tail of oil, and that's their control pipe at their refinery.

This is Texaco Oil Company at Dominguez Channel. Here they have a ponding area behind, and they pump the processed water from the refinery directly to the Dominguez Channel, and it flows down into the Los Angeles Harbor.

This is Union Oil in West Basin. This is from the refinery operations.

This is what it looks like a few years back in Dominguez Channel when we were pulling oil out of the channel after a rainstorm.

And the transportation of oil -- we would lose quite a few pipelines every year. This is to show you what a rent in the pipeline looks like when somebody goes into a pipeline that's fully charged and not open on one end, we have a ruptured line.

This is the Mobil Oil Company at Long Beach. This oil flowed into the street, down into the pump station and into the bay.

Here is another oil well in Long Beach. I am not sure of the -- I guess that's another Mobil rig. A production line from the rig was lost here.

Here is a rig in Long Beach -- a pipeline break -- Huntington Beach, I beg your pardon. Sometimes the oil flow makes it into a fresh water lake. This is Huntington Beach Lake. It's behind Huntington Beach.

This is a Standard pipeline break. They have to pull out the tules in order to remove the oil. You see we have pretty well denuded the place of tules, put it in a truck and hauled it off to the dump.

Of course, besides our fish loss in the place, we do lose birds. This was a loss of birds in that Huntington Beach area.

Sometimes we set it on fire, and this is one of the reasons we have an oil spill in Los Angeles Harbor or Long Beach Harbor, as soon as it is discovered, the Coast Guard runs or the fire department runs, the game wardens run -- everybody hits the scene to start out their own particular ball of wax.

On this particular day, it was the fire department's bag.

In the transportation of oil and use of oil, this is a shipboard spill. This was a vented tube. They just filled the tanks too full, and it flows out the vent and over the scuppers -- or over the combing and through the scuppers, and it goes into the bay.

Here is an example of a ship having a deck spill, and losing it into the Harbor.

This is a picture of Torrey Canyon -- an infamous ship that went ashore at the Scylly Isles in England, and we have had to prosecute her twice in our harbor for oil spillage, and she also got stuck out here one time -- she is so monstrous.

The Navy contributes. This is Navy Day.

(Laughter.)

And here we have another Navy Day. We have gone a great distance with the Navy on investigations. We have done a six-year investigation with the Navy on the causes of oil spills.

Admiral Moore, the Chief of Naval Operations, made a study, and we now have a descending line, instead of an ascending line into this harbor for oil spills.

And I have got totake my hat off to the Navy. They have really gotten to it.

This is "tank bottoms" from a tanker at sea. This is the normal stuff -- well, not normal -- abnormal, I guess. But when you walk on the beach in the middle of the night, and step into this -- these are "tank bottoms" of ships working at sea, and we have this oil-like substance coming ashore.

Here is crude oil from a tanker at sea. This pulled -- just a little bit east of Long Beach this came ashore.

This is typical of our young "surfing set", during an oil spill. They had to throw these in. Can you imagine what Mom said when these monsters came home? Even going away, they look pretty horrible.

This is a problem in the Los Angeles half of the harbor. Union Oil Company puts a thiosulfate, and the State Water Quality Control Board has ruled that fish life is not a beneficial use in the harbor, and we have for years maintained a zero to .5 oxygen content in the harbor.

Now, it has been raised to 1.

Putting thiosulfates into an anaerobic state, like we have, sulfur-reducing bacteria boom. They chew on the thiosulfates and release colloidial sulfur -- which we see here.

Here is colloidial sulfur in the whole area of the West Basin, where Union Oil was located.

Now, what we are trying to do on this next seriesof three or four slides, we are going to fly in a helicopter and show you how the "white water complex" moves out of the West Harbor -- or West Basin -- down the main channel to the outer Harbor.

Now, we are on the east side looking west. Now you see a small boat cutting down at the bottom. We have never seen this "white water" -- or it may have happened at times -- we have never seen the "white water" past that natural line of demarcation.

Now, we are on the other side looking at that line in the upper left-hand corner, and we will now fly straight down the channel to the outer harbor.

Notice the slip up at the left. It doesn't have the "white water" in it. The colloidial sulfur remains, probably, in the upper three feet of water, as evidenced by the tugboat's wake.

Further down in the harbor you can see that the flow is straight out. It doesn't get back into the slips on either side.

Now, we are at the outer harbor, and where the colloidial sulfur is.

Now, we are looking back up in the main channel. You can still see the colloidial sulfur in the outer harbor.

There is a shot of the "Angels' Gate" in the Long Beach breakwater. You can see the breakwater in the foreground running up. You can see a fan-shaped color in the outer ocean from the outer harbor.

Now, this phenomenon is always there; that is, when the tide is going out, the water of the lighter color is always there carrying out whatever is mixed to the outer ocean.

That fan is always there on the low tide.

We get off the oil a minute. This is an old shot, but it is an expression of things that happen. This is Kaiser Gypsum Company, taking their plasterboard to sea and dumping it eight miles off the breakwater light.

After we pulled in and made the observation, and did what we were supposed to do, they ceased this operation. These are the types of things that we will find along the coastal area.

This is Long Beach Soap Plant. We had a little problem with keeping their animal fats in the plant.

Long Beach Harbor -- iron ore, I guess. It's fines from an iron ore process, where they ship iron ore overseas. These fines were hosed into the harbor. It turns the harbor water that color of red.

This is coke. This is produced by the refineries, moved into the harbor, and it is hosed into the harbor waters.

This is the Los Angeles River. This is detergent coming down the arroyo in the Los Angeles River, and this usually happens about four o'clock, about every Friday afternoon.

This is a fish cannery outfall, next to Fish Harbor. This is the outer harbor over here, and you can see where slurry comes from the fish cannery.

This is another type of pollution. This is a bulldozer building a home site somewheres along the coast, pushing the dirt out into the sea, and when a game warden working that area sees all these clams covered up, it just hurts him.

And this is Los Angeles Harbor fish-kill in the

Slip 212 area.

This is a fish-kill in the Santa Monica Bay area.

Another fish-kill in Santa Monica Bay. That's what we are really interested in.

Here, I have thrown these in just for your edification. This is the Mobil rig Able at Santa Barbara. This was taken on the 28th when it first started bubbling gas only.

That evening, about four o'clock, they noticed that they were getting some oil. They called us immediately. We went up the next day and this is what we found: two boils under the rig and this big boil that looks like three out here, about 300 yards from the rig.

Now, as this continued, the oil flow became greater. This was about eight days later. This is after the storm front went through. You see Santa Barbara Harbor is just a sheet of oil. These areas in here are kelp beds. We flew over and we got some real good shots of close-up kill. We couldn't see a frond, because the bed was holding the oil.

We put a patrol boat in it, and they reported the oil was anywhere from a quarter of an inch to three-quarters of an inch thick in the kelp beds.

And here is another shot of the harbor. Now, they tried to boom the harbor. It was very ineffective, but they forgot that the breakwater is porous, and has to breathe. I think most of the oil went through the breakwater and didn't go "around the Horn", there.

We have always found that this will happen.

CHAIRMAN McCARTY: Excuse me. What were the dates of these programs?

CAPTAIN PUTMAN: The first one was on the 29th. These two were right after the storm -- I can't give you the date now, but I think it was about eight to ten days after the flow.

Here is another shot on that same flight. There is a little brown stuff in the foreground -- it's straw that they had put onto the oil.

Here is Stearne's Wharf. You can't see the oil for the straw on it, but the whole coast was inundated and got a pretty good bath from Gaviota down into our area.

That's all we have.

MR. DE CAMP: Is oil your particular work?

CAPTAIN PUTMAN: No. We're game wardens. We inspect sportsmen's limits, size limits, and net sizes. We worry about Russian fishing -- problems of coming within 12 miles of the coast. This is one law -- I have got one man, Officer Wells here, that does this.

So this is his bag, and whole ball of wax. Except, the Santa Barbara thing -- we had a couple of extra people up there. It just got too big for one man.

MR. CROOKS: Captain, were most of the shots that you showed, with the exception of those that you indicated, taken within a couple or -- maybe three years ago? Were they all pretty well recent?

CAPTAIN PUTMAN: Yes, sir.

CHAIRMAN McCARTY: I notice at least two methods of oil cleanup. Would you describe the procedures that are generally used when there is an oil spill, as far as cleanup is concerned?

CAPTAIN PUTMAN: Yes, sir. We, in this harbor, have probably worked with as many oil spills, professionally, as any organization has.

It has been our philosophy here -- a law-enforcement philosophy -- that it is against the law to spill oil, and you had better take your oil out of the water. That's philosophy.

The reasoning behind this is if you bring the oil down through the water column, then we are really going to get hurt. We are talking about eggs, larva, plankton, diatoms algae. We keep that oil floating -- then we can get it out of the water.

But on the big spill, you can boom, you can blow, and you can pray, but Mother Nature's going to put that oil on the beach some place, and in the Santa Barbara thing -- we worked with Mr. De Falco -- and knocked the dispersements down to a very, very minimum.

I think we are all going to be happy that we did this. It's going to go onto the beach, anyhow. Once it gets on the beach, that's when we go to work.

Booming at sea is impractical. Everybody knows it's impractical, but we tried it in Santa Barbara. I don't know why we did it, but we knew it was impractical.

We recommend and stick by physical removal of the oil in trucks. Lay straw, anything that will help remove the oil physically from the water, and our policy that we sent to Secretary Udall was -- we recommended this -- that the chemicals be limited to those that aid in the physical removal of the oil, or something that will change the viscosity so you can handle the thing.

After we got our policy approved by the Department of Fish and Game, we wrote Secretary Udall, urging that the Department of Interior establish a like policy.

And this policy did come forth -- maybe not because of our recommendation -- but it did come forth. And both of our policies basically said the same thing -- physical removal.

MR. DE CAMP: When the oil comes from these rigs at sea, are they reasonably well prepared to work on the oil when it comes from the platforms?

CAPTAIN PUTMAN: I can't say out there on the Federal lease.

MR. DE CAMP: Within your jurisdiction --?

CAPTAIN PUTMAN: Within our jurisdiction, we have booms there. The main thing is to get the word out to people that can help -- like Coast Guard, Fish and Game. And they call the commercial cleanup crews, and they all get together and say, "The wind is blowing this way, men; let's get our catchment down here and do it."

Our jurisdiction -- yes. They are well aware of the problem and how to work this thing.

CHAIRMAN McCARTY: You showed one color slide of a platform with oil rising to the surface from a boil. Was that the one in Santa Barbara?

CAPTAIN PUTMAN: Right at the end of the presentation?

CHAIRMAN McCARTY: About four slides from the end.

CAPTAIN PUTMAN: Yes, sir. That was the Santa Barbara -- Platform Able. That was the first big boil -- about 300 yards from the rig. It eventually ceased, and most of the oil was coming up right from under the rig.

And now it's back out to the side.

CHAIRMAN McCARTY: Thank you, Captain Putman.

CAPTAIN PUTMAN: Yes, sir.

CHAIRMAN McCARTY: Next I would like to call on Mr. Ladin H. Delaney.

STATEMENT OF LADIN H. DELANEY,
SENIOR WATER QUALITY CONTROL ENGINEER,
SAN DIEGO WATER QUALITY CONTROL BOARD

MR. DELANEY: Mr. Chairman, Mr. De Camp, and Mr. Crooks, I appreciate very much the opportunity to make a presentation to you today on this very important aspect of clean water for the nation's estuaries.

We have heard a lot about pollution this morning. Now, let's hear a little about how to control some of this pollution.

Mr. Dibble, who was here this morning as cochairman of this Panel, mentioned San Diego Bay frequently.

Dr. North referred to San Diego Bay, and Admiral Davis also referred to San Diego Bay.

I, too, will talk about San Diego Bay, but it will be in a little bit more detail than these other three people have previously spoken about it.

Specifically, I would like to give you a background on how the pollution in one of the nation's most important multipurpose estuaries was abated.

To do this, I have to give you a little bit of background into the history of San Diego Bay and the development of the metropolitan area.

Let's go back to 1542. That's the date when the bay was discovered by Cabrillo. Outside of a few whaling ships, traders, and so forth, that put into the bay over the years, there was not much more that was done.

In 1759 the first settlement was begun around San Diego Bay. The settlement continued to grow. The City of San Diego sprung up. By 1887 there was a need for a municipal sewer system within the metropolitan area, and such a system was put in, with a first raw sewage outfall discharging into San Diego Bay.

Development continued in the San Diego area, and by 1941 the City of San Diego had 22 raw sewage outfalls. Nine of these outfalls discharged into San Diego Bay. Thirteen of these outfalls discharged into the Pacific Ocean almost right across the beach, which, in itself, is a very unsavory condition.

In 1943 the City of San Diego put in the first sewage treatment plant anywhere around San Diego Bay. Because of the war the plant was overloaded before it was put into operation.

In 1948 the plant was expanded, but because of the Korean war, that plant was overloaded before it was put into operation in 1950.

The Regional Water Quality Control Board was created in 1949 by the Dickey Water Pollution Control Act. Virtually the first thing San Diego Regional Water Quality Control Board did was to take a real good look at San Diego Bay.

In 1950 San Diego Bay was a grossly polluted body of water. Admiral Davis gave a few of the characteristics of the Bay. I'm not going to at this point elucidate this any further. I will come back to this in a few moments.

But suffice it to say, it was a grossly polluted body of water.

The Regional Board urged that a study committee be set up consisting of a representative from each community surrounding the bay. The Cities of San Diego, Chula Vista, National City, Imperial Beach, Palm City, Coronado, the Navy -- anyone that had an interest in discharging waste into San Diego Bay -- any community that had an interest in discharging waste into San Diego Bay.

A committee was formed, the engineers were selected, the study was made and work progressed. In the meantime, the Regional Board held public hearings and established then official usage and water quality control criteria for San Diego Bay. This was done in 1955 when it was finally adopted: The resolution establishing the beneficial usage and the water quality control criteria.

Based upon these criteria, and recommendations by the engineers, a plan was developed and carried forward. In 1963 the plan was put into operation. The plan was known as the San Diego Metropolitan Sewage Plan.

Admiral Davis previously described the plan this morning, and it consisted essentially of large interceptor sewer around San Diego Bay that intercepts the wastes from all the communities that surround the bay. It is pumped over the hill -- over Point Loma to a treatment plant on the seaward side of Point Loma, and discharged through a sewage outfall that terminates in 200 feet of water approximately two nautical miles offshore.

In 1963, August of '63, just before they put in the Metropolitan Sewer System, the San Diego Bay was in terrible shape. The solid resulting from these mass discharges of 50 million gallons per day of almost raw sewage had resulted in sludge deposits -- that is, solids would settle down -- resulting in sludge deposits 9,000 yards long, 200 yards wide, along the North Shore of San Diego Bay.

The depth of these deposits was about three feet. The color of the water was a green. reddish brown, yellow, yellowish color. It varied, depending on the type of organisms which predominated at that particular time.

The dissolved oxygen was approaching zero in some parts of the bay. Approximately 9,600 acres of the bay surface was unfit for fish life -- about 80 per cent of the bay.

Within six weeks after the San Diego Metropolitan System was put into effect, the bay bounced back like nothing that I have ever seen before. The water became clear, whereas before you were lucky to be able to see two feet into the water.

Clarity increased to a reported depth of 30 feet. The Navy has a regulation against skin-diving in the bay because of the security reasons connected with the Navy. They received reports of skin divers over along North Island area, where they were prohibited.

These were investigated, and the skin divers turned out to be seals which had returned into the bay.

(Laughter.)

Not the Navy seals -- not the skin divers that the Navy uses, but the actual sea animal.

The fish swum back into the bay. It was just absolutely amazing, the amount of fish life that moved back into the bay within a few weeks after the discharge was stopped.

I am not a fisherman, I'm not an aquatic biologist, but even I could go down to the waterfront and tell the difference looking down through the water, and see all the fish swimming around in the water. It was quite impressive.

However, the job didn't stop with the implementation of the San Diego Metropolitan System. The Federal government established in the Water Quality Act of 1965 the requirement or the order, or whatever you want to call it, that the State come up with a water control policy for all the interstate waters.

San Diego Bay falls within this definition. In 1966 the Water Quality Control criteria established in 1955 for San Diego Bay was revised. Significant changes were made in the water quality control criteria -- or standards, or whatever you want to call them.

Because of the fantastic improvement in the bay water, the quality of the objectives had to be markedly upgraded, and they were. The Metropolitan System took care of all the municipal waste. All the shore-based municipal waste went into the Metropolitan System, but there was still not a significant amount of industrial waste to be dealt with.

The water control policy for 1966 took care of this. At the present time all of the industries surrounding San Diego Bay are under waste discharge requirements by the Regional Board.

Also at the present time, almost all of the significant sources of waste discharge into the bay from industry have been either connected into the Metropolitan System or are being treated to the extent necessary, and being discharged back into the San Diego Bay.

Actually, we only have two industries around the San Diego Bay that treat their wastes and discharge them back into the bay. The plan under way for removing even more of these waste materials, some of these more objectionable ones, -- the ones that have these nutrients in them and cause eutrophication problems -- are being removed.

And more of these are going to be removed in the future.

I have painted a pretty rosy picture of San Diego Bay. We still have a few problems. One of these is eutrophication. I will be coming back to that in a moment.

Another one is oil. You saw some photographs a few moments ago about oil in Los Angeles Harbor and oil in the coastal waters. We don't have anything even approaching the magnitude of the problem that you just saw here.

We have occasional oil spills. We requested the Federal government to study the various methods by which these oil spills might best be eliminated and contained or cleaned up after they happen.

Another problem is trash -- trash on the bay water. It is very unsightly, particularly so now that the bay is a sparkling blue. You didn't notice it before when it was a dirty brown or a dirty yellow or an off color, but now that the bay is so clean, you see all of this trash immediately.

What is being done about the trash? First of all, there are regulations prohibiting the disposal of any trash in any water course leading to San Diego Bay. The Board recognizes that if you put trash adjacent to these river beds -- which are dry 99 per cent of the time -- and you get some rainfall, it will wash into the bay. And this has happened.

Therefore there is a provision -- no trash in these river beds -- in the dry river beds.

Another approach to this of the San Diego Unified

Port District is pursuing, is the actual cleaning up of the trash that does get into the bay. They have a crew of men that go around and pick this trash up that comes from boats and from on shore, and from any piers that are handy. They cart it away and burn it up, or put it into a sanitary landfill.

This program is going to be even more vigorously pursued in the coming years.

Here is one thing that has been done: The Port District has posted, I believe, between 50 and 100 signs citing that it is against the law to discharge any type of trash into the bay. A lot of this trash comes from just thoughtlessness.

Someone will be standing by the Embarcadero finishing a bottle of pop, and they throw the can or the bottle into the bay water. Or -- the styrofoam cup. ACtually, the biggest problem with trash on a continuing basis are from two sources: One is the styrofoam cup that floats, and two, are the beer cans that are thrown overboard by the so-called sportsmen.

A lot of attention has been directed towards the Navy for causing a lot of the trash in San Diego Bay, but this isn't true. The preponderant number of beer cans are noted right around the marinas, and I am quite sure that these come from the so-called sportsmen that throw them overboard.

Admiral Davis made the comment this morning about the Water Quality Control Board having a rather hardnosed outlook for the discharges into San Diego Bay.

This is correct. We watch every discharge into the bay very closely. We have excellent relationships with every discharging agency into the bay. There is no animosity at all between the Port District and the Regional Board. It is done on a cooperative basis.

He mentioned that we regulated the discharge of washing wastes from airplanes into San Diego Bay. This is absolutely correct. We prohibited discharge. The reason for this was that the discharged wash water contained not only a significant amount of detergent, it also contained significant amounts of grease and oil and dirt washed from the planes, and at times it contained 143 parts per million of paint remover, which they used to clean the paint off of the planes.

That was the major reason for prohibiting the discharge of plane washing wastes into the San Diego Bay. The discharge also occurred in the area that they were doing some rather highpowered scientific research, and it interfered with their research program.

But I stress the point that it has been on a cooperative basis with all the industries around the bay, and all of the discharging municipalities and individuals.

The Navy has a large complex at North Island. This is one of the few remaining dischargers in the San Diego Bay. There is a very large industrial complex operated on North Island by the Navy.

The money has been budgeted. Construction should be begun during the next fiscal year. And hopefully, by 1970 -- the end of '70, 1971 -- this discharge will be connected into the Metropolitan Sewer System.

All of the domestic waste water from the North Island complex is now going into the Metropolitan System.

The FWPCA recently completed a two-year study of the effects of vessel waste discharges on bay water. I have seen a draft memorandum of that report, but I am not at liberty to release any of the findings that are contained within the report until the report is officially released, which I understand will be quite soon.

Hopefully, the problem of discharge of wastes from vessels will be one that will not result in such a political battle as was indicated this morning.

I mentioned eutrophication. This is one of the significant problems that still remains in San Diego bay. Dr. Wheeler North touched on this this morning when he talked about the biological impact of some of the discharges into the estuaries. This is absolutely correct.

This was the basis for deciding to take all of the wastes out of San Diego Bay by the municipalities. You could treat the waste water to an acceptable level. You could bring the organic concentration to five or ten parts per million. You could make the water look absolutely clear. You could chlorinate it, and you could get rid of the health hazard, but you could notget rid of the nutrients which caused the eutrophication problem.

This was the single determining factor which prompted the municipalities to decide to go to the ocean for the disposal of the waste products. But we still have a eutrophication problem in San Diego Bay.

Industries that I mentioned that discharge wastes into the bay, although their discharges are not very large volumetrically, they contain significant quantities of nitrogen, phosphate, potassium and some of the other minerals that are so essential for plant life.

We expect when the last major improvement is raised by these industries, which is supposed to be done within two months, that we will again see a fantastic improvement in the clarity of the bay water.

They are going to remove about 90 per cent of these nutrient-bearing materials. When this happens, the injurious organisms will literally starve, because they won't have the nutrients available.

Eutrophication also leads us quite naturally into the discussion of the other coastal lagoons in San Diego County. These were mentioned by Mr. Dawes and Mrs. Mudie, who finished her presentation a few moments ago.

We have a physical problem in the coastal lagoons. Mrs. Mudie spoke to you about Sorrento Lagoon. It is absolutely true. Two sewage plants discharged a treated effluent into Sorrento Lagoon. The effluent is secondary effluent with a BOD of between 10 and 15 parts per million, highly disinfected with a coliform concentration of generally zero.

The problem is the nutrients. Again, you saw these terrific algage growths which were stimulated by the nutrients in the discharge. This is one problem that we don't know how to cope with. I don't think anyone knows how to cope with this particular problem at this particular time.

Therefore the San Diego Regional Board has a policy of not allowing any discharges of treated municipal wastes into the coastal lagoons that have nutrients in them. I believe if somebody wanted to discharge salt water from a salt water regeneration system into the lagoon, they would think this was O.K., but no treated municipal discharges are allowed in the lagoons.

However, we do have discharges into the San Elijo Lagoon, which is just north of Sorrento, and also into Batiquitos Lagoon. What is the Regional Board doing about these problems? The City of Escondido discharges its effluent 15 miles upstream from San Elijo Lagoon. The effluent is secondary effluent, very highly treated, but it meanders down the streams and enters the lagoon and causes the fantastic eutrophication problem.

The Regional Board, on January 14, 1969 issued a cease and desist order against the City of Escondido, and gave them until July 1 of 1970 to remove this discharge from Escondido Creek, thence to San Elijo Lagoon.

The Batiquitos Lagoon, just north of San Elijo Lagoon, has two discharges: one from the Arcadia Water District and one from the San Marcos District. Both, again, are highly treated discharges -- secondary effluent.

What has the Regional Board done in this instance? The Board issued a cease and desist order against the Arcadia County Water District to stop the discharge into Batiquitos Lagoon,and the San Marcos Water District voluntarily connected up into the Encinas Ocean Outfall Disposal System.

So as of May 1 of this year their discharge will no longer be entering Batiquitos Lagoon.

And incidentally, so you will be aware of the eutrophication problem, let me give you a brief, thumbnail sketch. You saw the pictures of the algae. That isn't, in itself, objectionable. It looks very pretty when it's green. The problem comes when it gets to be decomposed, and this stuff, believe me, can grow to a depth of about 15 inches, particularly so when the wind will blow it over against one shore of the lagoon, when this begins to decompose, you get a fantastic odor that is second to none.

The odor of decomposition will probably make you "toss your cookies" when you drive past one of these lagoons. It isn't very pleasant, and it is a problem that has to be corrected.

Someone mentioned opening the lagoon. Perhaps this is a partial solution. It will allow some flushing. But I think you can recognize from the photographs of the State Department of Fish and Game that they showed just a few moments ago, the extremely complicated hydraulic characteristics of all these different lagoons.

One opening wouldn't do it, just to flush a little water back and forth. It would help, undoubtedly, but it would not completely eliminate the problem of eutrophication.

And this, as I see it, gentlemen, is the number one problem facing the Regional Board at this time in approaching lagoons. What to do about the problem of eutrophication.

We don't know what to do about it, other than to prohibit any discharge at all of sewage effluent into these lagoons. I don't know of anyone else that has a better approach to the problem, but if they do, I would certainly like to know about it.

I think, in concluding, I would like to make one point. It is that once the beneficial uses have been established for an estuary, there is really no reason why a metropolitan community, or an urban community surrounding these estuaries cannot live in harmony with the estuary.

It is possible to take the step to either prevent the pollution in the first place or if the pollution has already occurred, to remove the pollution from the body of water and to restore it to a more natural condition.

I don't think that we will ever go back to the condition that the discoverer of San Diego Bay found back in 1542, but we are striving for it.

Thank you very much.

CHAIRMAN McCARTY: Thank you for your very fine discussion of the Board and of the activities at San Diego Bay.

MR. CROOKS: Your very excellent description of San Diego Bay and your discussion on the eutrophication problems in the bay make it seem that you don't completely agree with the statement that was made earlier this morning that San Diego Bay is a biological desert.

MR. DELANEY: No, I don't agree with that completely. I understand the context in which the statement was made, and from a biologist's point of view, it may be a biological desert, but as far as I am concerned, it is not a biological desert.

Let me expand on this just a little bit.

I mentioned the sludge deposits that had been 9,000 yards long and 200 yards wide and three feet thick. By 1963 this deposit was about seven feet thick right over the outfall where the outfall went out into the bay.

In 1966, when the Regional Board revised that policy, this sludge deposit had virtually disappeared. There were little patches of sludge way back in amongst the piers, but the maximum depth of the sludge was about 12 inches. Almost all of the sludge had disappeared.

Now, this didn't disappear into the thin air. What we feel happened is that all the ships' movements in and out of these piers with their big propellors, stirred the water enough to physically remove the sludge into the channel where the velocity of the water was sufficient to carry it out into the bay and then into the open ocean.

The sample, and I have taken a lot of core samples on San Diego Bay from the surface -- I haven't done it by diving, so I can't speak authentically with authority on the bottom conditions from a visual point of view, but the core samples that I have taken have shown an abundance of worm life -- marine life.

Perhaps this would be an excellent subject for the Federal Water Pollution Control Administration, with their adequate staff, to do a complete ecological study of San Diego Bay, just to find out how far the recovery of the bay has progressed, how many forms of life have actually come back into the bay.

CHAIRMAN McCARTY: Thank you, Mr. Delaney.

MR. DELANEY: Thank you, sir.

CHAIRMAN McCARTY: I would like to call next on Mr. Richard Ball.

STATEMENT OF DR. RICHARD BALL,
SIERRA CLUB, ANGELES CHAPTER

DR. BALL: Mr. Chairman, my name is Richard Ball, and I am here representing the Los Angeles, Angeles Chapter of the Sierra Club.

I believe that this Board is quite aware of the value of estuaries, so I won't go into and repeat the statements that have covered this important subject already this morning.

We, in the Sierra Club, are very much concerned with the value of our Southern California lagoons and estuaies. We are concerned with their esthetic value as open space, and their importance in the marine ecological community, and their existence as a source of recreation, and education, and also one value as a natural means of water quality management that can easily be upset when these estuaries are altered.

Some other things that concern us most about estuaries in the coastal areas of Southen California are the, what we see, as the major trend. And some of the dangers are the great amounts of actual physical alteration or destruction of these estuaries by converting them by major physical change to other purposes, such as harbors, residential and commercial developments, filling them in for freeways and changing them in such a way as to convert them, say, totally to recreational use as opposed in a manner that they adversely affect the wild life values.

For example, I believe there are a number of conflicting uses that have been cited by Dr. Gaul, so I won't go into this in detail.

But I think that we would also agree there is a great need in looking at estuaries to have overall planning and set priorities, instead of the piecemeal manner in which the estuaries are now being allowed to be used.

These decisions tend to be made at the local level by agencies which do not perceive or do not necessarily respond to some of the major values which estuaries have.

For example, the values for wild life habitats is something that just doesn't accrue to local jurisdictions, but it accrues quite obviously to the nation, and perhaps on an international level.

And certainly, the local jurisdictions don't always value this highly, and don't see the full value of this to the entire nation, and therefore decisions are not made on a rational basis as to what use is going to be made of these estuaries.

The other major area which is of course a concern of this Panel is the pollution of estuaries. I would like to say a little bit about our problems, particularly in the Los Angeles area, but in Southern California in general, the pollution of estuaries and with the State policies on water pollution control, which we believe to be inadequate in several respects.

But before getting to that I would like to go on and say that there are these major questions of what estuaries should be used for -- the priorities.

I would suggest that while it is difficult to place a number on some of these values, that we should think in terms of the value of scarce resources, and certainly as wild life habitats, we have to look at these estuaries in a sense of the ecological unit, and as a part of the whole.

Well, for example, in the case of birds, we have the entire Pacific Flyway that can be threatened if one area of a certain type of habitat is wiped out for a certain distance whereby birds would not be able to migrate effectively up and down the coast for the lack of feeding and resting grounds.

I think there is a real concern among conservationists that Southern California may become the weak link in this entire Pacific Flyway, because we are destroying estuaries at a tremendous rate.

Particularly, certain types of habitats. We may, for example, dredge an estuary and create a deep water lagoon, and you may see waterfowl resting on the surface of this lagoon, but we may have wiped out the habitat completely for short-legged birds. We need the mud flats -- large areas of mud flats in which to feed.

I believe an example of this problem, which was talked about in more detail by Dr. Greening in the case of Newport Bay, is what we believe is one of the last major bay-like estuaries in its near normal state in Southern California. It has a variety of different types of habitat, including marshes and mud flats, and somewhat deeper water areas.

As Dr. Greening pointed out, this bay has already been approved by the State Lands Commission for trade with a private developer, and this will be largely dredged and filled and converted into residential-commercial development, and which will almost completely and effectively destroy its value for this type of short-legged wading bird habitat.

We think it could have a serious effect on the whole Pacific Flyway.

I think this is an example of what happens when local jurisdictions and local interests formulate the problem, and more particularly for political reasons that need not be gone into here, where the local interests are dominated by certain commercial interests, rather than even what the general public may want for a certain area.

So I would like to suggest that in the equation for evaluating the uses of estuaries, we have to take into consideration that the political processes do not always in a natural way lead to the project being developed for the greatest public interest -- not only the public, first of all, because the public is not always aware of the value of an estuary, and are not always aware that it is in danger of being lost.

And if the decision is made on too local a level, it will not give adequate consideration to these international values as opposed to the very great value, the economic value that has to the private industry to develop these, because the large value per acre, per square foot and such things, and has, well, let's say, anywhere for development.

Again, if any of you gentlemen were at the conference in LaJolla yesterday on "Man's Chemical Invasion of the Ocean", there was a very eloquent speech by Dr. Richard Miller of Yale University on the ecological importance of estuaries, pointing out that while we look to the oceans of the world for our future resources, we must learn to recognize that estuaries are such an important link in that chain, the great mass of ocean may become barren if we break this very important ecological link in the chain in a place like the estuaries,

And second, the estuary and marshes have a very high biological productivity compared to other types of ocean waters.

Again, I think that we must have means for making decisions and to take these values into account. In Southern California, and in California in general, I believe it has been estimated that we lead the nation, as pointed out by Dr. Miller, in destroying estuaries.

I think California has destroyed 67 per cent of its estuaries, and that process is not stopping. Upper Newport Bay is slated for destruction, and some of the other estuaries down the coast may be slated for various forms of alteration.

Some of the ones you saw in the pictures this morning, or this afternoon by our Fish and Game Department, at Goleta Slough, the Highway Department wishes to put a freeway across it, and since it costs more money, they don't want to put pilings in; they would rather fill.

They would rather cut off portions of estuaries and destroy their value.

Another example you saw in the Seal Beach and Naval Weapons Station, there is a large slough in the Anaheim Bay that is being attacked from several sides.

The County wants to further its aquatic park up in that area. The Flood Control people are going to put a flood control channel, and the freeway people are going to put in a freeway.

By the time they get through, there won't be anything left of it. Upper Newport Bay, as you can imagine, is going to be completely destroyed. These are other examples.

I brought this out because while we are talking about pollution of estuaries, it is meaningless to worry about their being polluted,if they are essentially destroyed. At least they are destroyed as far as conservation.

It can be agreed that they no longer support these important functions as wild life habitats. These are being completely converted to these alternative and competing uses for commercial development, which often happens.

And as an example of that, one of the major estuaries in the Los Angeles area was what is now called Marina del Rey, and there has been virtually nothing -- I say nothing, I should not say "virtually" -- of that left over for the type of bird habitat that was once served.

Mission Bay in San Diego has been largely converted over to different types of recreational use, and much of the bird habitat has been destroyed.

To come back to the pollution aspect, I hadn't finished preparing my written testimony on that, and I think I will wait on that. I will go into that in a little more detail, and that is as to some of the specific standards that we think are in order in California, water pollution standards.

But I would like to make a few general remarks on this subject. You heard the previous gentleman mention that California is divided into nine regional boards. These regional boards tend to differ quite considerably in their policies, perhaps more than is justified by purely local conditions, and one of the main inadequate features of this policy is what we feel is very much a built-in conflict of interest situation in which the membership of the regional boards is spelled out in such a way that it is inherently the wolves looking after the sheep.

And if you are not familiar with the composition of the boards, they have specified that there should be one representative from industry, one representative of irrigated agriculture, one representative of county government, one representative of water supply, and a representative of other types of government, a representative of the Fish and Wild Life industry, and one representing the public, and this in an area that is heavily industrialized, where the common interests of both the industry and of many of the governmental officials who tend to want to promote industry in an area such as this, in Los Angeles, a dominant effect can be that the large majority of the board will see an economic stake in continuing pollution, because of the savings that industry seeks in being able to freely get rid of their wastes in public waters.

I believe we have such a situation in the Los Angeles Region, and I think it is reflected in the pictures that you saw of Captain Putman of Los Angeles outer harbor in which there have been very few cease and desist orders.

One of the difficulties we have in dealing with this situation in conservation is that the structure of the water control policy is very deceptive. One must spell out the beneficial uses, and then if something is considered pollution, it must be shown to adversely affect these beneficial uses.

There are some biological aspects of this policy that have effectively prevented what we think is rational water policy and use.

For example, in the bay you saw the use of certain types of chemicals -- the thiosulfates coming into the harbor. This isn't pollution and a cause to cease, because it does not affect the beneficial uses which have been decided upon for that harbor.

Fish and wild life uses are not listed at the moment as a beneficial use of the Los Angeles inner harbor; therefore these thiosulfates and oil are not pollution, but the difficulty is that these pollutants do move out into the outer harbor, do pollute the outer harbor and the surrounding ocean waters.

And when we complain of this situation, we are told that they don't believe it has an adverse effect on the fish and wild life.

And we said, "Well, we think that the experience of local scientists and divers is that wild life is affected," and we are told, well, we have to prove this, in effect, that there is insufficient money by the local boards to do the type of monitoring that is needed to find out if the chemicals actually do have an adverse effect on the outer harbor and the ocean.

And therefore since we haven't been able to prove that it has this adverse effect, in other words, it is an illogical situation in which one looks at bodies of water where the discharges come in, and assume that somehow they are isolated, that the inner harbor is isolated and to be treated by itself, and ignoring the fact that these waters do go on out into the ocean, and having lack of scientific information and staff throughout their establishment, and the Board has pointed out, obviously, it is all independent scientists that say these chemicals are having an adverse effect upon the marine life of the California Coast.

But if it is left up to the public to prove this -- it is not thought to be the duty of the Water Quality Board to determine this and to establish this and to control this -- these polluting materials.

I think that gives you a general idea of the nature of the problem with water quality standards. We are also rather unhappy that there are very few centers, at least in this area, and I am not completely familiar with the standards in other regions on pesticides, and of course you heard some of the difficulties in trying to set standards on nutrients.

I think it has become quite clear now and again after this meeting on chemical invasion of the ocean yesterday in LaJolla, the scientists pointed out in considerable detail the now rather convincing arguments about the harmful effects of DDT, and the cases come into clear focus, and I think there can be little doubt that DDT and hydrocarbons are constituting a lethal pollution problem in our environment, and if we continue to allow these to be discharged into our waters, well, we hoped that something would be done about this, and this, just in January on our statewide water quality policy, has been under review for possible change.

And the staff report which came out in January on this, on the matter of changing the legislation on a statewide policy was disappointing in many respects to conservationists, one of which was that the state policy made no change in the conflict of interest situation on both the regional and the state boards, but to some extent on the state boards, in fact, it went slightly backwards in a rather minor way, so the situation is not changing.

Secondly, on the question of pesticides, we are left with very little help on this problem, and I would just like to read one phrase -- portion -- from the policy which spells that out -- if I can find it here.

Yes, in this recent report, which was a State-appointed board to review and make recommendations on what the new policy should be, it was stated that present State law concerning enforcement and regulation has been adequate to protect the public and agricultural use, which we are not convinced of, while the problem of pesticide control is beyond the scope of this current study.

The seriousness of the problems are fully recognized -- well, it is recognized, but nothing is being done about it. We feel that we are not completely sure what this means to say that it is outside of the scope of the present study, except that it is pretty clear that nothing is going to be done about it for quite some time, and we feel that there is no real excuse at the moment to continue allowing pesticides to be used -- particular types of pesticides, which are so persistent in the environment, when there are alternative ways of doing things.

But we seem to be helpless to prevent the situation at the moment. I think perhaps this would be one area in which nationwide standards might be helpful, because it affects -- it is an interagency problem, and it goes beyond merely water quality over into agricultural agencies and interstate controls may be in order in this particular field, and I think there is no excuse for waiting longer to study the problem when we know that some of these chemicals are harmful and could be replaced.

I would also like to go on with the notion of what of the Federal versus the State controls or local controls about the use of estuaries in particular, and shoreline areas in general.

Conservationists are attempting to make progress on the State level on better coordinated statewide planning, but there is a real question in mind whether the time is not running out on us before such policies can be instituted, and we think that in particular again, that our estuaries are going so fast that we are not sure that the public can be made aware that the necessary coordinated policies can be brought about in time, before we lose too many and are past the critical point, and as I mentioned before, Upper Newport Bay has already been essentially given away by the State Lands Commission, and there only remains the legal questions about it, which may yet save it, but it may not. Time is running out on our last major estuary in Southern California of this type.

I would like to make a few personal remarks on the recommendations which have not necessarily been considered by the Sierra Club, yet, and that is again, we still need the moral suasion of the Federal government on the water quality requirements by the State.

I know that the FWPCA has approved most of California standards except for those in the Los Angeles Region. The moral force and the pressure of the Federal government on this situation is important factor in giving practical support and pressures to upgrade our water quality standards.

Presently again, we need close controls on the pesticides. The State government, also, I think needs some help and stimulus, perhaps monetary help, in trying to preserve those values which have more of a nationwide and international significance, rather than merely statewide significance.

Our system still operates in terms of monetary values, where the local government, if they see a profit to be made by promoting development in an area where higher taxes could be maintained by allowing development, simply, they look at that and say, "How can you expect us to save that mud flat for birds, when it would bring in sky-high tax dollars?"

This is said quite seriously, and obviously, because the County doesn't see it -- that it is going to benefit by preserving those birds, whereas on a national and international scale, we may very well make rational decisions that say that, "This value is too great. This resource is too scarce to allow it to be destroyed for lack of money to either purchase this land or at least preserve it."

In some cases it isn't needed for the government to purchase it -- the State already owns the tidelands, but the pressures to deed them away are far too heavy. They feel they have to deed them away. They can't preserve it for the State in this natural condition.

And lastly, I think that serious consideration might be given to -- because of the rains -- of the structure as to our -- both by a modification and by pollution -- we have to consider whether there is adequate time to wait while we make long-range studies and look for the means to plan and preserve these estuaries, and we might give serious consideration to more time on modification of estuaries while these determinations are being made.

I thank you.

CHAIRMAN McCARTY: Thank you, Mr. Ball.

I think you have pretty well covered the points we are interested in, that we were seeking statements on.

I wanted to clarify one point. You mentioned State Board policies. Are you referring to changes in proposed legislation that the State Committee had prepared?

DR. BALL: Yes. The State task force actually made two types of recommendations. One of their recommendations was for Board policies itself, and the other part of the recommendations were actual changes in the State law -- the water quality law, and they were promised both these.

I don't mean to imply that this report did not have considerable improvements in the means of enforcement, but that it had a considerable number of weaknesses, and I might, if you are interested, I have a copy of it I can send you with my written testimony of the Sierra Club criticisms of this task force.

I think that we haven't seen the final recommendations after the hearing of what the task force will come up with, and which they are now considering. They are now considering revisals in these as a result of public hearings, so we don't know what the recommendations for legislation will be, but we do feel that there are some inherent weaknesses that should be corrected.

CHAIRMAN McCARTY: Thank you.

One other point I would like to clarify, when you say "The Sierra Club", are you referring to the Angeles Chapter?

DR. BALL: Just the Angeles Chapter, yes. I haven't really -- I should say I am discussing primarily my own views, but I think that they will reasonably represent the views that we have,in the Chapter, developed over a period of time, but they are my own statements. Perhaps we should clarify that.

MR. DE CAMP: Are you familiar with the public law, 9454, which is commonly called "The Estuary Protection Act", which we passed last August?

DR. BALL: Is this the same one we know originally as HR 25?

MR. DE CAMP: That's correct.

Now, the basic purpose of this Act is the protection of the estuaries by law or by acquisition, and this study is going forward at the present time, and perhaps it would be well to bring the Upper Newport Bay situation to the attention of the people doing this, because this is a case that deserves their attention, in that, as you point out, it's the last remaining major wild life habitat estuary in Southern California.

And this is just the type which should be protected by some means.

DR. BALL: Yes, we have, I believe, been in contact with the agents in the Interior Department -- I think it was the Fish and Wild Life.

MR. DE CAMP: The Fish and Wild Life are doing this.

DR. BALL: I think that there is some awareness. We were somewhat concerned by recent decisions of a court that brought in question the "Memorandum of Understanding." I have forgotten all the details in this.

They required new legislation. Our impression of HR 25 was that many of the stronger provisions that would have given control, particularly to the Interior Department, had been removed, and that it was based upon this somewhat more tenuous legal question of the Memorandum of Understanding by which our estuaries were not being protected, which is, as far as we can see, -- hadn't been the precedents there that would show whether this was going to work well, it hadn't bee clearly shown yet.

So we are clearly concerned to see how this is goin to work out.

CHAIRMAN McCARTY: Thank you, Mr. Ball.

I would like to indicate for the record that Mrs. Elna Especher will be submitting a statement for the record.

Are there any other people in the audience that would like to make a statement at this time?

If not, we will recess the meeting until seven this evening, at which time we will again receive statements.

For those of you who are interested, we will reconvene again tomorrow morning at 9:00 o'clock. So if anyone that you know of that may be interested in making a statement, we would be more than happy for you to tell them about it, and have them come before us.

Thank you.

(Whereupon, at 4:30 o'clock p.m., the Committee recessed, to reconvene at 7:00 o'clock p.m., the same day.)

EVENING SESSION

7:00 p.m.

**CHAIRMAN McCARTY:** Ladies and gentlemen, we are calling our National Estuary Study Meeting together here, again, at seven o'clock for the purpose of receiving statements on your views regarding the nation's estuaries.

Is there anyone here who would like to make a statement this evening?

(No response.)

**CHAIRMAN McCARTY:** Our primary purpose in holding an evening meeting is to allow those who work during the day to have an opportunity to express their views to us on the nation's estuary problems.

If there is anyone here that wasn't here this morning, I should reiterate that those of you who would like to make a statement for the record, and who do not want to present it orally, you may do so until March 14, 1969.

We would be happy to receive statements until that time.

Any statements received by then will be made part of the record.

If there is no one in the audience who would like to make a statement, we will recess the meeting until tomorrow morning at nine a.m.

(Whereupon, at 7:15 o'clock p.m., the Committee recessed, to reconvene at 9:00 o'clock a.m., Wednesday, February 26, 1969.)

CHAIRMAN McCARTY: The meeting is about to begin.

Would you take your seats, please.

I want to welcome you here this morning to the third and last reconvening of our public meeting on Water Quality Management of Estuaries here in Los Angeles.

For the record, I would like to indicate somewhat the diversity of the people who have attended the meeting. We had representatives from the -- these are people other than those who have already spoken or indicated they were going to send a statement:

University of California.

East Los Angeles College.

Southern California Edison Company.

River Point Landing.

Long Beach Oil Development Company.

Todd Shipyard Repair.

OFPA.

San Diego Museum of Natural History.

Signal Properties, Incorporated.

Systems Development Corporation.

City of Los Angeles, Department of Water and Power.

Los Angeles County Health Department, Sanitation District of Los Angeles County.

Orange County Water Pollution District, and

The Port of Los Angeles.

In addition, we have had representatives from three different federal agencies and five separate state agencies.

I would like to call on our first speaker this morning, Mr. Raymond M. Hertel, who represents the Los Angeles Regional Water Quality Control Board.

Mr. Hertel.

STATEMENT OF RAYMOND M. HERTEL,
EXECUTIVE OFFICER, THE RESOURCES AGENCY OF CALIFORNIA, REGIONAL WATER QUALITY CONTROL BOARD 4,
SUITE 408, 205 SOUTH BROADWAY, LOS ANGELES, CALIFORNIA 90012

MR. HERTEL: Thank you very much, Mr. McCarty.

Before I start I would like to mention that I did receive a telephone call from Mr. Dibble earlier this morning, and he has asked me to express his deep regrets that he would not be able to sit with you today, but business precluded this from happening.

I have been asked to relate a story about one of the estuaries we have in the Los Angeles Region, and this story will point out, I believe, specifically the complications that we are getting into in our estuaries, the complications that we have in the regulation of discharges of waste materials and how sometimes what you might think is one way of thinking -- one way of looking at something -- as you look at it in a little greater depth, you might come out with a different opinion -- a different method of action than you might at the time that you started into this.

We have as a boundary between the Los Angeles Board and the Santa Ana Board, the San Gabriel River, which drains a large drainage area from Northern Los Angeles County, Northern Orange County, some areas of San Bernardino County also are in this drainage system.

Dry weather flow in this river, upstream, at the upper edge of the tidal prism is zero. So essentially a majority of the year other than those times we have rainy periods, and even during most of our rainy periods on our normal rainfall, we get little runoff carrying down. We do get some.

The water in the river is there by virtue of the extension of the ocean up to the extent of the tidal prism. This has been altered by man, because in the use of this system for flood control purposes, as a prime objective, the Corps of Engineers, the Los Angeles County Sanitation District, the Orange County Sanitation District, have caused the invert -- the configuration of the San Gabriel River to be altered.

So it is no longer what could be considered as a natural stream channel.

There are two major power plants which are located along the lower extremities of the river. One, the Southern California Edison Company, the other is the Los Angeles Department of Water and Power.

The Southern California Edison Company pours cooling water, and it comes over to Los Cerritos Channel, which is westerly of the San Gabriel River, and pulls in their basic cooling water source. This come up from the Alamitos Bay complex.

The L. A. Department of Water and Power pulls their inlet cooling water source from the Alamitos Bay area and from the Long Beach Marina.

Both of these will discharge heated water, which has passed through their processes for cooling, at a temperature which has been increased from by 23 to 27 degrees. This is discharged into the San Gabriel River.

Now, the discharge, combined, of the two power plants is approximately two billion gallons per day, with water that is from 23 to 27 -- probably closer to 27 degrees higher heat than it would be considered as normal for the ambient temperature of the waters in the bay area.

The volume discharge is such that if you are observing the river, you always observe an ebb tide. At no time do you see tidal waters coming in the extent of the tidal prism. The flow is always towards the ocean.

Now, you will get the elevation of the river, -- the surface water of the river -- by virtue of the tidal conditions that are in the area, however, this is an underlying bottom phenomenon, because you get your heated water overriding, and you always get your flow heading to the ocean.

MR. DE CAMP: Where is this discharged?

You kept talking about the tidal prism, but you haven't named it yet.

MR. HERTEL: The two discharges, and I didn't bring them out, because I didn't realize I was going to be talking about them -- the two discharges are into the tidal prism of the San Gabriel River.

MR. DE CAMP: Which is where?

MR. HERTEL: Which is just at the easterly boundary of the City of Long Beach on the ocean.

Seal Beach is in Orange County to the immediate east.

Long Beach, along the San Gabriel River, is to the immediate west of San Gabriel River. I am sorry. I didn't realize that there would be people here that did not understand.

MR. DE CAMP: I couldn't remember where that river discharged.

MR. HERTEL: But this is really the river coming down -- it is not the political boundary of the Orange County and Los Angeles County, but the political boundary of the two counties does zig-zag back and forth across the river in this location.

Seal Beach is just to the east of the river, and Long Beach is to the west of the river.

Now, as I have indicated, we have two billion gallons a day which causes a flow always to the ocean. When we were prescribing requirements as a Regional Board on regulation of discharge from these two power plants, it was very quickly ascertained that the only significant factor from the standpoint of the Department of Fish and Game and from the standpoint of aquatic life and marine organisms was the temperature.

The water passing through the power plants, based upon many years of analytical determinations, depletes the dissolved oxygen by only about a half a part per million.

So unless you have had a red tide condition in the Alamitos Bay area, or in the ocean leading into the area, where oxygen has been depleted, your oxygen being discharged into the San Gabriel River after passing through the power plants is essentially the same dissolved oxygen that you would find in ocean water or in Alamitos Bay offshore.

This would normally be running seven parts per million, on occasion down to five. But generally, a considerable amount of dissolved oxygen such that it would support what Fish and Game has recommended would sustain a viable aquatic environment for the marine environment.

The only thing that would alter or would cause any changes or have any effect would be the temperature of the waters. Now, the water temperatures in our offshore ocean and the Alamitos Bay area, in this particular location during the height of the summer period, might run as high as 70 degrees.

Now, you will generally vary high 50s, -- 58 is a cold water temperature. We will run into 61, 62 -- the middl 60s -- and as our peak of the summer condition approaches, we can get water temperatures, occasionally, as high as 70 degrees.

If you add to this the heat added by the power plant -- your discharging water -- you have a temperature 95 degrees, 97 degrees.

When we asked for a recommendation as to the upper water temperatures which would have an adverse effect on the ecological life, there was nobody that did give, or nobody that could give us an upper value.

We, by an adjective clause, said that discharges which would adversely impair the ecological environment, could not be allowed from either of the two plants discharging the water.

We described requirements in the early 60s, so we will have had a period of six or seven or eight years to date, at which we still do not have anybody that can give us a maximum value for water temperatures.

Now, we do know, as is obvious, that as you alter the water temperature in the manner in which it has been altered, that is, allowing a 26 or 27 degree temperature rise above normal or ambient ocean temperature, you will create different conditions of the flora and fauna that are extant in the area on which the temperature has been raised.

We find that because of this difference that there are different species in there than would be normal if this temperature rise had not occurred.

We find that there are some species which under normal conditions of the ocean waters, because of the fluctuation in temperatures as we go through our temperature cycles, would be away from the area.

They are attracted into this area and stay for a longer period of time because now they have a temperature that suits them better than the colder water temperatures would, and they, as you know, tend to follow the ocean temperatures and ocean currents in their wanderings and meanderings through the ocean.

We find that there are fishermen which come down to the mouth of the river where they have access and can fish, and now find that they can fish for a longer calendar time -- and they are pleased with us.

Now, there might be some fishermen that say, "This isn't the type of fish I want to fish for. I would rather fish for something else."

But there are people who feel that the heated water has been an asset, because it brings in more of the species of fish. It brings and keeps them there for a greater period of time.

People that are using the mouth of the San Gabriel River for water contact sports have found that they are more comfortable in this water, particularly as the water temperature of the ocean cools down.

So they have a longer period of comfortable water contact sports time.

I merely wanted to relate this to you, because I do believe that on first blush, we would say that there is a problem with heated discharges. I would be the first to be in agreement with this.

In the particular circumstances and conditions that we have facing us in the San Gabriel River, it has appeared to the Board, it has appeared to me, and to other people, that instead of being a detriment, that it has been an asset at this particular location.

Now, if you have any questions, I would be happy to try to answer them.

I did want to depict this as a part of the complexities of the problems that are facing the regulatory agencies, that are facing man as he must look at all of the various factors and conditions that he must review to attempt to manage or to maintain estuaries in the most desirable condition for the maximum per cent of people.

Thank you very much.

CHAIRMAN McCARTY: Thank you, Mr. Hertel.

MR. HERTEL: You're welcome.

CHAIRMAN McCARTY: Is there anybody else in the audience that would like to make a statement at this time?

Yes, sir, would you come forward, please.

Would you state your name, please, for the record.

STATEMENT OF DR. GILBERT BANE,
UNIVERSITY OF CALIFORNIA, IRVINE

DR. BANE: I am Dr. Gilbert Bane from the University of California at Irvine.

For the last two and a half years or three years, I have been intensively studying the Newport Bay area as far as the ecology, the background information, so that when and if a renovation and modification comes to the bay, we will have some background material with which to compare the changes.

Now, you probablyknow that there has been a lot of discussion between State, the community, and the Irvine Company about the land exchange, and in the future it is anticipated that many parts of the Newport Bay, especially the Upper Newport Bay, will be changed.

The marsh islands which are in there will probably be removed. The water will be deepened. There will be cement or concrete abutments placed around the periphery of the bay and the environment and habitat of organisms will be so changed that we can anticipate certain changes in the organisms which live there.

The bay, at the present time, is unpolluted. The only pollution which is entering the bay is from occasional discharges of toilets from the many vessels, sports and party boats, which are in the bay. There is no water being discharged commercially in the lower bay, and only a trickle comes in at the upper bay.

This is really not an estuary by the strict definition of an estuary. It is a marine body of water in which great quantities of fresh water are flowing, or river water is flowing.

However, this week it is an estuary. In the last couple of weeks we can consider Newport an estuary.

It has some detrimental effect during this time of the year and I will discuss those in a minute, but if and when the land exchange takes place, and if and when this modification takes place, the habitat will be so modified that the marsh islands and the organisms which live there, such as the birds, will not have a place to roost unless someone plans now to provide a sanctuary for the marine organisms.

There are populations of the California horned snail which need marsh islands, mud flats, upon which to live. The birds of course need a resting place. There are populations of fishes in there which can only live in the shallow waters. In the deep waters they cannot survive.

Ecologically, I am very interested in what is going to happen to the beaches. Already we have lost over the last few years at least three species of organisms which were formerly there.

One was the sea whip, of which formerly there were large concentrations in the upper bay.

Another species is the lancelot, which can no longer be found there. There are worms which have been pushed to the point of extinction since man has come into the area, dredged out the bay and made suitable changes.

As more and more development takes place in the bay, we anticipate more and more animals being pushed out. For the last two and a half years, I have been trawling -- using a net -- to estimate the populations of the marine organisms in there.

What I have been doing is capturing these, marking them and releasing them alive and unharmed back into the water. As far as the fishes are concerned, we learned that most of them are rather stable in the population sizes.

However, there are some which are migratory. In one instance, we estimated that in an area of maybe three or four times the size of this floor, there were 8,000 sting rays. These are very seasonal -- they come in there to spawn during the summer months -- the spring and summer.

Other fishes, in the spring time, come up there, but they seem to be transient. In the morning theycome in with the tide. They may leave in the afternoon. We found that certain fishes,like the California halibut and some of the other flat fishes, are a relatively stable population in there.

Basses are stable in their population, but the main thing about these populations is that a lot of them come in there in their larval stages.

They grow, they have protection in the mud flats, and in the bays, and then later they will go out to the ocean when they have obtained adult size, and migrate along our coast where sport and commercial fishermen can catch them.

The bays along the coast -- the estuaries along the coast -- provide a sizable area for protection of the young and larval fishes. The young eggs, the larva, perhaps wash in with the tides, and no doubt some of them do spawn there.

The populations of anchovies go there and spawn. The halibut, and many of the other fishes are known to spawn in deeper waters. The eggs and larva wash in, and they grow to maturity in the bay with suitable protection, lots of food, and then migrate offshore where they are caught by commercial and sport fishermen.

Well, the crux of this matter is if the bays are not protected, and if the habitat is changed, a number of things can happen.

One thing that can happen is with the advent of deeper waters, if they dredge from areas which are now two or three feet deep, to 12 or 15 feet, it will provide habitat for larger fishes to come in, and perhaps forage on the small fishes which are in a nursery ground there.

However, it might bring in a greater number of fishes. It might form more area for habitat. And there is an infinite variety and complex of things which can happen to the main organisms in the area.

Right now I am saying that we just do not know what is going on there. There have been no intensive ecological studies, really, to find out what is going to happen to our bays along the coast.

In most instances in the past, ecologists and biologists have not been able to get into an area until after suitable or many changes have been made by architects, engineers, dredgers and the like.

This is the first instance where we have some information on the standing crops, the basic productivity of an area before a great deal of renovation is going in. I am working on this. The first part of my study has been published, a book of the fishes of the Upper Newport Bay.

The next part will be the standing crops, or the abundance -- the seasonal abundance -- of the fishes which are in the region, and finally, the third part will be a study of the marine invertebrate organisms -- the clams, the crabs and many of the other creatures which live there.

And I will supply you with copies of these in the future as they are published. I hope they will be published by the end of this year -- that the other two papers will be finished.

Thank you.

CHAIRMAN McCARTY: Thank you, Dr. Bane.

You mentioned that there were three species that have been completely lost from the bay in recent years.

To what do you attribute this loss?

DR. BANE: The loss of the species in all three instances has been habitat change. They were in mud flats, they were in sandbars and in mud banks.

The mud banks were removed by dredging operations to widen and deepen the main channel, and this happens to be in the path where the populations were before.

We have searched throughout the bay, but have not beenable to find these.

Another species which is on the point of extinction is the fiddler crab. Fiddler crabs are fast becoming extinct along our coast here, because they need certain types of habitat. Mud flats or certain rocky areas in protected bays.

Since we have so few of these left in California, the largest population that I can think of right now is in the Upper Newport Bay. There are none in the lower Newport Bay, because there is only cement abutments and banks and abutments down there. They don't have a suitable habitat.

In the future, if we take out the habitat where these fiddler crabs live, they will be gone, too. Other species will be pushed to the point of extinction, or at least removed from the area of Upper Newport Bay before long.

MR. DE CAMP: What is the salinity of the Upper Newport Bay?

DR. BANE: The salinity of the Upper Newport Bay now is almost fresh.

MR. DE CAMP: Under normal circumstances?

DR. BANE: Under normal circumstances, the salinity is the same as the open ocean, except on the bottom, it is a little bit higher. It may be 34.5 to 35.

The tidal exchange there is so that in our studies that we have made, we have shown that the tides probably flush out 90 per cent or more of the water every day and a half.

So we have new water in there every 36 or 48 hours, and it is the same as the ocean.

MR. DE CAMP: You don't think there is much stratification? Does all this pretty much flush from bottom to top?

DR. BANE: Well, the bottom, since it is shallow in many of the mud flat areas, it is particularly flushed in there. And especially on high and low tide days, we get greater flushing action.

We get currents up there which exceed one knot. We have computed the currents mathematically, and we have gone down and measured them with a current meter, and shown that they are very fast currents, and we have shown that also, the water is exchanged at a very high level.

CHAIRMAN McCARTY: Thank you, Dr. Bane.

Is there anyone else in the audience who would like to make a statement at this time?

(No response.)

CHAIRMAN McCARTY: If not, I would like to repeat again that our record will be held open until March 14, 1969 for any additional statements from those who would like to be on the record.

We expect the transcript of these proceedings will be available in about three months, and those of you who have signed the list in the back of the room will receive one.

I wanted to thank all of those who participated in the meeting today, and yesterday, and personally have gained considerable new knowledge -- a little better insight, I think, into some of California's unique problems with its estuaries.

I particularly want to thank the State of California, not only for providing a place for this meeting, but also for providing a considerable amount of assistance in the development of a state profile which describes the state agencies' activities in its estuaries.

I think with that, we will call the meeting adjourned.

Thank you again.

(Whereupon, at 10:00 o'clock a.m., the Committee adjourned, subject to the call of the Chair.)

101-a.

# STATEMENTS AND REPORTS
# FOR THE RECORD

# THE PRESENT AND FUTURE ECOLOGY OF UPPER NEWPORT BAY

An address to the Sea and Sage Audubon Society, the Orange Coast Civic Association, and the Orange County Chapter of the Sierra Club, March 11, 1968.

By Wheeler J. North
Professor, Life Sciences, Calif. Institute of Technology an
Kerckhoff Marine Lab, Corona Del Mar.

At the beginning of this century there were 28 sizeable estuarine environments in Southern California. Three have been eradicated long ago. Ten others now stand drastically modified by human activity. Most of the remaining 15 are scheduled for profound alteration. Their present condition varies from slightly to moderately altered as a result of man. One of the 15 is Newport Bay, ranging from moderately changed at the lower end to only slightly modified in Upper Newport Bay. Of the 15 estuarine like situations that remain fairly natural, Newport Bay is far the largest, embracing about two square miles. This is small when compared to the great estuaries of our country, but our semi-arid region is relatively poor in bays and estuaries. Newport Bay is the third largest natural bay in Southern California, being exceeded by only San Diego Bay (about 23 square miles) and Mission Bay (about 4 square miles). Along 400 miles of coastline between Morro Bay in Central California and Estero de Punta Banda in Mexico, Upper Newport Bay stands as the last major baylike body of water remaining in a fairly pristine condition. For Southern California the ecological importance of Newport Bay is enhanced by its size, its relative freedom from human-caused change, and its position as an uncontaminated oasis in the middle of a long stretch of deteriorating coastline.

The detailed workings of large ecosystems such as Upper Newport Bay are extremely complex - far beyond the present capabilities of human comprehension. In spite of this, our general understanding of how an estuary operates is fair and at times our insight into certain processes is good. Upper Newport Bay unquestionably plays a great many ecological roles. Three of these are easily identified and are obviously very important. They illustrate the broad influence exerted by a large ecosystem.

First of all, Upper Newport Bay receives drainage from a substantial terrestrial expanse. Sediments, dissolved material, and organic substances are carried in, modified, and deposited or discharged to the sea. In assimilating nutrients and organics the Upper Bay subserves both the land and the lower bay as well as the sea in the same way that a sewage treatment plant serves not only the human community that uses it, but also whatever lies downstream. Aquatic assimilating systems found in nature require extensive shallow surfaces with plenty of sunlight. Marshes, swamps, and mudflats have evolved as optimal situations for rapid and efficient aerobic assimilation.

Secondly, Upper Newport Bay harbors a specialized fauna and flora adapted for life in the quiet shallow waters. The disappearance and deterioration of estuarine environments in Southern California has drastically reduced populations of most of these specialized forms. At least three species that formerly could be found in other areas, now are restricted to Newport Bay.

Thirdly, Upper Newport Bay is used by many species that do not spend their entire lives there. Common examples are the migratory birds that sojourn temporarily in the Bay or juvenile stages of fishes that later occur as adults on the open coast. Large ecosystems do not recognize political boundaries and decisions made by officials in Orange County will influence the ecology of areas far beyond their jurisdiction.

Many migratory species need the special characteristics of the estuarine environment. In the lonely shoals of Upper Newport Bay, large numbers of these birds feed on the invertebrates of the mudflats. Their short legs restrict them to shallow waters but the gentle slopes combined with rise and fall of the tide actually furnish a great many acres for their foraging.

Has Newport Bay changed significantly? The lower areas are substantially modified. For example, off the Kerckhoff Marine Laboratory I have watched the decline of ten species that were common or dominant there 20 years ago. Now these organisms have become uncommon or disappeared altogether. I do not know why the decline occured. The ecosystem is so complex it might take years of work to establish causes for the changes in just one of these species. I do know that lower Newport Bay now resembles some of the common barren estuarine environments in Southern California more closely than it did 20 years ago. Upper Newport Bay has changed less but many differences can be seen, particularly in areas where human activities are concentrated.

Could Upper Newport Bay be restored? The ultimate success of any restoration efforts are not predictable but I believe much could be accomplished. Is the area worth saving? "This lovely bay setting with the isolation that still exists throughout much of the region can no longer be found anywhere else in Southern California. Destruction would be a tragedy."

What will happen to the ecology of Upper Newport Bay if intense development occurs? Exact plans have not been revealed so specific predictions are not possible. Emphasis, however, will clearly be placed on aquatic recreation, whatever developmental plans are adopted. The broad shallow swamps and mudflats, so important to the present ecosystem, are incompatible with maximal recreational usage. Most, if not all, of the Upper Bay will be deepened and the slopes of the beaches increased. The ecology will change profoundly.

For a decade or two the common man will probably regard the change as an improvement. The environment will still be relatively clean and perhaps fishing for certain species may even be better. Sooner or later, however, the wholesome bay will succumb to processes of human ecology that man seems powerless to control.

As more humans crowd into Orange County, usage of the Upper Bay will increase. Congestion will affect desirability of the area. Affluent persons and individuals who value high quality environments will move elsewhere. The remaining populations will be less critical of practices that cause environmental deterioration. Elected officials will mirror this trend. Pollution will be increasingly tolerated if it is outweighed by political and economic benefits. Eventually environmental deterioration and general discontent will reach proportions that can be ignored no longer. At this point local government is usually unable or unwilling to act effectively and rehabilitation by State, Regional, or Federal government becomes necessary. Cost are enormous and such projects can usually only partially restore environmental quality. The original ecology is lost forever.

This depressing chain of events has happened time after time, altering bays, estuaries, and harbors throughout the country. One has only to look a few miles northward to see the final stages of decline in an extinct estuary that is now Los Angeles Harbor. Farther north, the rehabilitation stage is getting underway in San Francisco Bay. The telltale signs of demise are increasing in lower Newport Bay. From my window I can see a lovely old waterfront mansion being razed. Five smaller dwellings will take its place. Facilities everywhere in the lower bay are being taxed by the burgeoning population.

Only prevention of intense human usage will save the high quality environment of Upper Newport Bay. This conflicts directly with the immediate needs of the general public for recreation. Consequently widespread support for saving the Upper Bay cannot be expected, particularly in Orange County. Important as recreation is, the long range needs of all the Southern California residents have priority. Our grandchildren will dwell in a vast monotonous metropolis stretching 250 miles from the Mexican Border to Santa Barbara. They will desperately need a few high quality oases such as Upper Newport Bay.

Conservationists in Los Angeles, Riverside, San Diego, and beyond must realize that they too have a stake in the game when a large ecosystem such as the Upper Bay is threatened. Animal populations throughout Southern California and perhaps the entire coast depend on the integrity of Newport Bay. Only the protests from many voices throughout the State will save the haunts of sandpipers, snowy egrets, and fiddler crabs from oblivion.

By Dr. Wheeler J. North Professor of Life Sciences at California Institute of Technology, and Kerkhoff Marine Laboratory at Corona del Mar. (Kelp habitat improvement program.)

# APPENDIX

Plant and animal genera observed by Caltech personnel in Newport Bay in 1967 (23 dives) and 1968 (11) dives off the pier of the Kerckhoff Marine Laboratory.

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Plants

Animals

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Chlorophyta

- *Codium*
- *Derbesia*
- *Enteromorpha*
- *Ulva*

Phaeophyta

- *Colpomenia*
- *Cystoseira*
- *Desmarestia*
- *Dictyota*
- *Dictyopteris*
- *Egregia*
- *Eisenia*
- *Laminaria*
- *Macrocystis*
- *Taeonia*

Rhodophyta

- *Bossiella*
- *Corallina*
- *Gigartina*
- *Jania*
- *Laurencia*
- *Lithothrix*
- *Prionitis*
- *Pterocladia*
- *Rhodymenia*

Porifera

- *Astylinifera*
- *Haliclona*
- *Hymeniacidon*
- *Leucetta*
- *Tetilla*
- *Timea*

Coelenterata

- *Aglaophenia*
- *Anthopleura*
- *Botruanthus*
- *Corynactis*
- *Muricea*
- *Tubularia*

Bryozoa

- *Bugula*
- *Crisia*
- *Diaporecia*
- *Membranipora*
- *Rhyncozoon*
- *Scrupocellaria*
- *Thalamoporella*
- *Victorella*

Annelida

- *Chaetopterus*
- *Eudistyla*
- *Eupomatus*
- *Sabella*
- *Spirabranchis*
- Unident. cirratulid

Mollusca

- *Aletes*
- *Dendrodoris*
- *Diaulula*
- *Hinnites*
- *Jaton*
- *Kelletia*
- *Maxwellia*
- *Mytilus*
- *Navanax*
- *Octopus*
- *Protothaca*
- *Zonaria*

Crustacea

- *Hippolysmata*
- *Inachoides*
- *Loxorhyncus*

Echinodermata

- *Astrometis*
- *Astropecten*
- *Lytechinus*
- *Ophiothrix*
- *Pisaster*
- *Stichopus*
- *Strongylocentrotus*

Tunicata

- *Boltenia*
- *Botrylloides*
- *Didemnum*
- *Styela*
- Unident.

Pisces

- Atherinids (unident.)
- *Chromis*
- *Coryphopterus*
- *Cymatogaster*
- *Embiotoca*
- *Engraulis*
- *Girella*
- *Halichoeres*
- *Heterostichus*
- *Hypsopsetta*
- *Hypsypops*
- *Leuresthes*
- *Lythripnus*
- *Medialuna*
- *Oxyjulis*
- *Paralabrax*
- *Pimelometopon*
- *Pleuronicthys*
- *Poricthys*
- *Rhacochilus*
- *Scorpaena*
- *Urobatis*

March 11, 1969

Mr. Irving Terzich
Federal Water Pollution Control
Administration
760 Market Street
San Francisco, California 94102

Dear Mr. Tirzich,

As an addendum to testimony given by me in Los Angeles on February 25, 1969 I have enclosed a more complete checklist of birds observed in and around Bolsa Chica lagoon.

In addition, I would like to raise a question, either to you personally or for inclusion in my testimony concerning the status of intertidal land, such as may be found even within privately-owned areas such as that owned by the Bolsa Corporation. Does this have any bearing on the people's right to have a say in the use of those lands? It was my understanding that the land between mean high and mean low tides was public property. Has this been obliviated in the lagoon area east of the dam, where tidal variation is very slight?

You may recall my tentative suggestion in response to "What can the Federal Government do?" for a local panel of persons with interest in coastal waterways. Would it be possible for me to obtain Mr. DeCamp's address in order to pursue the idea further?

Thank you again for your help in Los Angeles and whatever attention you may be able to give to the above.

Sincerely,
Edward L. Robert
Edward L. Roberts, D.V.M.
3022 Kittrick Drive
Los Alamitos, California 90720

BIRD SPECIES OBSERVED AT BOLSA CHICA LAGOON BY MEMBERS OF L.A. AUDUBON DURING 1968.

(A more complete checklist available from Sea and Sage Audubon Society.)

Horned Grebe
Eared Grebe
Western Grebe
Pied-billed Grebe
Great Blue Heron
Green Heron
Common Egret
Snowy Egret
Black-crowned Night Heron
American Bittern
White-faced Ibis
Pintail
Green-winged Teal
Blue-winged Teal
American Widgeon
Shoveler
Canvasback
Lesser Scaup
Greater Scaup
Ruddy Duck
Red-breasted Merganser
Turkey Vulture
Red-tailed Hawk
Marsh Hawk
Sparrow Hawk
Ring-necked Pheasant
Clapper Rail
Sora
Common Gallinule
American Coot
Killdeer
Common Snipe
Spotted Sandpiper
Willet
Greater Yellowlegs
Long-billed Dowitcher
Marbled Godwit
American Avocet
Black-necked Stilt
Ring-billed Gull
Boneparte's Gull
Forster's Tern
Caspian Tern
Western Gull
Mourning Dove
Spotted Dove
Belted Kingfisher
Wilson's Phalarope
Dunlin
Anna's Hummingbird
Red-shafted Flicker
Black Phoebe
Common Bushtit
Long-billed Marsh Wren
Mockingbird
Ruby-crowned Kinglet
Water Pipit
Loggerhead Shrike
Starling
Orange-crowned Warbler
Audubon's Warbler
Yellowthroat
Western Meadowlark
Yellow-headed Blackbird
Redwinged Blackbird
Brewer's Blackbird
House Finch
Brown Towhee
Savannah Sparrow
White-crowned Sparrow
Song Sparrow
Long-billed Curlew

# Southern California Lagoons
# a Valuable Resource

By

John S. Bradshaw
Department of Biology
University of San Diego

The lagoons and estuaries of Southern California today are threatened, not by nature but by the hand of man. Evidence of abundant shells of many species of shellfish from Indian middens along the shores of all of the lagoons, reveals that before the coming of the Spaniards, these lagoons were areas flourishing in wildlife.

The estuaries considered here include those lying between the cities of La Jolla and Oceanside (Los Penasquitos, San Dieguito, San Elijo, Batiquitos, Agua Hedionda, Buena Vista, Loma Alta and Santa Margarita). Today these potentially productive and esthetically pleasing meeting places of sea and fresh water, as was so well pointed out by Dr. North, appear to be doomed to extinction by the bulldozer, the dredge and various forms of man induced pollution including domestic sewage, and pesticide spraying.

Because of the already high density of population along the coast and its predicted growth, the future recreation needs will also increase. An increased standard of living and more leisure will mean more time and money for boating, water skiing, fishing and swimming activities. In addition, a greater awareness on the part of the general public of the natural values of these areas has resulted in the demands that certain lagoons (ie. Los Penasquitos and Buena Vista) be set aside as open space water and recreational areas. An ecological study of Los Penasquitos Lagoon has been prepared for the State Division of Beaches and Parks. This report contains suggestions for improving the area as a wild life refuge and as a public recreational area. The same State Division has also undertaken a study of Buena Vista Lagoon which may result in public acquisition of the lagoon including an additional 90 acreas on shore. If feasible, peninsulas and Islands would be constructed for picnicking, boating and related uses, while preserving the open space and bird sanctuary.

It must be realized now that many different kinds of pressures will be exerted on the seven or eight small estuaries lying between La Jolla and Oceanside. Already the U.S. Army Corps of Engineers has tentatively earmarked many of these lagoons as possible future marinas. Private developers have already purchased land and from time to time have considered marina developments for the estuaries of Los Penasquitos, San Dieguito, San Elijo, Batiquitos and Agua Hedionda. Additional developments in the areas of sewage disposal, (ie. San Dieguito, Los Penasquitos, and San Elijo), future flood control channels (Los Penasquitos, San Dieguito), insecticides from mosquito abatement (to some extent all lagoons) and nuclear power generation (Los Penasquitos) will doubtless cause more or less serious impairments to all of the lagoons concerned.

Each of these problems are part and parcel of the larger problem; the orderly growth of the metropolitan community and its encroachments on the last remnants of the regions' natural attractions. The major problems may be classified into those of (1) Immediate problems and (2) Future importance,

(1) Immediate problems

A. The possibility of excessive eutrophication from sewage effluent now flowing into Los Penasquitos, San Dieguito, San Elijo and Batiquitos (occasional).

B. Mosquito breeding areas in the land locked lagoons.

C. The stagnant condition of the land locked lagoons resulting in the absence of highly productive shell fish and fish populations.

(2) Future problems

A. Items 1.A., 1.B., and 1.C. as indicated above.

B. Possible thermal pollution or"addition" from the proposed San Diego Gas and Electric Facility (Los Penasquitos).

C. Disturbance to natural lagoon environments by easements across lands.

1. Planned flood control channels extending to the ocean, thereby cutting off natural fresh water inflow into the marsh (Los Penasquitos, San Dieguit

2. Ocean cooling water intake and outfall conduits for San Diego Gas and Electric Facility (Los Penasquitos).

D. Need for open space and recreational areas throughout entire area.

E. Possible incompatibility of light industry, housing developments, sewage ponds, marinas, wildlife areas, nuclear power plants and flood control channel

F. The possible future consideration of reclamation of freshwater from sewage or desalination of salt water and how best to combine this facility with the least possible disturbance to the ecology of the area.

## Recommendations

Because of the complexity of the problems and the many private, local, state and federal groups involved in different aspects of the problem of estuaries, it is recommended that a Southern California Estuarine Development Commission be established similar in scope to the San Francisco Bay Development Committee. This committee would then be able to establish guidelines based on thorough studies, to provide the entire Southern California area with an orderly approach to rectification of the problems already noted and including studies of the development of compatable beneficial activities.

Recommendations for rectification of problems that might be considered by such a commission might include (listed by problem item reference number above):

(1) Immediate

A. Removal of excessive sewage effluent from eutrophied lagoons. Three suggested alternatives are:

(1) Discharge to sea via ocean outfalls. This may be generally acceptable if appropriately spaced but is unacceptable for Los Penasquitos because of adverse effects upon biological and oceanographic research at the nearby Scripps Institution of Oceanography.

(2) Pumping of sewage to already existing outfall systems (San Elijo and/or Point Loma etc.). This solution maybe temporarily expedient but may in the long run be undesirable since gradually increasing nutrient buildup in the nearshore coastal water may so change the environment that desirable plant and animal species may disappear. As Dr. North has pointed out there is already evidence that pollution exists at some of these localities and this problem will doubtless be increased with futher increasing loads.

(3) Reclamation of fresh water from sewage effluent by development of secondary-tertiary treatment systems to form wildlife and recreation ponds similar to the Santee, California Wastewater Reclamation Project. This plan is considered to be most compatable with the total ecology of most

marshes and lagoons since instead of the present unproductive and unattractive salt flats and dead vegetation, there could be freshwater lakes both for wildlife and recreation, thereby enhancing the appearence of the upper lagoon and marsh areas. Solutions (1) and (2) pose the danger that if all of this sewage effluent were diverted to an outfall system, the only freshwater for the lagoon would be rain runoff from winter rains, a highly variable source. Furthermore if flood control channels were also constructed (see C.3), there would be no significant freshwater source and the present fresh and brackish communities would be destroyed.

B. Mosquito abatement

(1) The present practice of spraying with chlorinated insecticides and the use of tracked vehicles injuring the marsh surface are harmful to bird and fish life. Recent evidence of the extremely dangerous results of high DDT levels in the top carnivores of marine food chains reveals that other means of mosquito control should be considered.

(2) It is recommended that mosquitos and other insect pests be killed naturally by draining and rechanneling freshwater swamp areas above tidal-influence to permit more rapid drainage to salt water. Biological control through increased use of Gambusia (mosquito fish) and/or other mosquito larvae eating fish species would be less costly and probably more effective than the present use of sprays.

C. Maintenance of present tidal lagoons and construction of entrances to land locked lagoons.

(1) Periodic opening of sand bars by mechanical means such as dredging or by the use of bulldozers as was suggested by Mrs.Kudie for Los Penasquito lagoon. This should be done at the time the bar is first closed and before mass mortality occurs and the problems are compounded. The exact time of breaking the bar is important and should be done during the period of maximum tidal range so that the maximum amount of sand is removed.

(2) Construction of a dam with sluice gates near the channel entrance to impound salt water at high tide and release at low tide to erode sand to maintain normal channel depth. For most lagoons this method appears to offer the greatest chance for success.

(3) Formation of sea water lake and river with sufficient discharge to maintain opening through the beach using salt water from non-harmful waste discharges (Los Penasquitos proposed San Diego Gas and Electric Power Plant.

(2) Future (long range)

A. See items 1A, 1B, and 1C above.

B. There exists a possibility of thermal pollution from the proposed San Diego Gas and Electric Power Plant in Los Penasquitos. There will be a requirement for approximately 1 acre foot per minute of cooling water to flush back to sea. The anticipated rise in temperature of approximately 10° F. above the intake temperature may not necessarily be harmful if the water is taken from below the thermocline. It is possible that a slight temperature rise may actually be beneficial to some important food fishes and other species. Further studies of temperature tolerance will be necessary to fully assess the effects of a given temperature rise. In any event heat should not be released in any lagoon unless the temperature rise is limited to that tolerated by most of the established biota.

C. Requirements for covered/open outfall-intake systems to cross lagoon land.

(1) Ocean intake and outfall for San Diego Gas and Electric Facility at Los Penasquitos.

(a) Closed system with both intake and outfall conduits underground. This would be undesirable because construction would so interfere with the marsh environment that reestablishment would require many years.

(b) Combined open and closed system with intake conduit buried and discharge through an open channel. This open channel could be designed to tie in with already existing tributary channels. This is recommended (provided the temperature rise is consistant with temperature tolerance of the biota) as the best solution since the discharge would keep the lagoon entrance free of sand buildup.

(2) The proposed flood control channels should be designed in such a way as to blend in as much as possible with the existing marsh and wildlife areas. Attractive meandering riprap channels should be prefered to stright concrete ditches. It should be possible to use the lower tidal reaches as recreation or wildlife areas.

Only a few of the problems facing these estuaries have been described. Many others exist and more will be uncovered in the years ahead. The solution of problems and the discovery of valuable new uses for these areas, such as fish farming, shellfish and othe aquaculture can be developed. A concerted study of all phases of the ecology of each of the natural drainage basins including the estuaries must be understood so that the best and most efficient uses of this valuable coastline will be utilized. It is suggested that rather than allowing this rapidly disappearing resource to vanish piece-meal at the hands of local often short sighted groups, a master plan be established, by studying all of the lagoons and all of the suggested uses and then selecting for each lagoon the use or uses which suit it best. For example, it may result that certain lagoons (San Dieguito, San Elijo, Agua Hedionda) may be best suited for marinas, while other lagoons (Los Penasquitos, Buena Vista should be preserved as wildlife areas. It is possible that well designed plans might allow a limited degree of multiple use between limited recreational uses (ie. canoeing, swimming etc.) and wildlife life protection. It is apparent that only through coordinated studies, looking at all aspects both economic, aesthetic and ecological that we can make sound judgements as to the best possible use and development of the limited and valuable resource.

**FRIENDS OF NEWPORT BAY**

**BOX 4088, IRVINE STATION**
**NEWPORT BEACH, CALIFORNIA 92664**

February 24, 1969

Mr James McCarty
Pacific Southwest Region, FWPCA
760 Market Street
San Francisco, California

Dear Mr McCarty:

I appreciate the opportunity to present testimony on behalf of the Friends of Newport Bay at the public meeting in Los Angeles. In compliance with your request, I am attaching three copies of several written documents which bear on the uses and water quality of Upper Newport Bay. The documents were prepared by members of our organization.

Please feel free to call on me or other members of the Friends of Newport Bay if we can help you in any way.

Very truly yours,

Charles P Greening

Charles P Greening, Chairman

Enclosures:
1) Testimony for public meeting on water quality management for estuaries.
2) Upper Newport Bay: Source materials
3) Statement of Principles
4) The present and future ecology of Upper Newport Bay
5) Letter to Mr Norman B Livermore, Jr.
6) Where Is Our Bay Going?

**FRIENDS OF NEWPORT BAY**

**BOX 4088, IRVINE STATION**
**NEWPORT BEACH, CALIFORNIA 92664**

February 1969

TESTIMONY FOR PUBLIC MEETING ON WATER QUALITY MANAGEMENT FOR ESTUARIES

To be presented in Los Angeles on February 25, 1969

The Friends of Newport Bay wish to call to your attention some of the past, present, and possible future uses of Upper Newport Bay, as related to water quality. We will consider quality of the water to include salinity, tidal mixing, biological productivity and other characteristics as well as simply presence or absence of pollutants.

The Past

Within the memory of people presently living near the bay, it was a natural tidal estuary with extensive aquatic plant growth, particularly on the tidal islands and in the upper reaches, where it merged with an existing fresh-water marsh. It was a veritable paradise for ducks and geese which wintered on the waters among the reeds, for countless shorebirds which fed and waded in the shallows on the tidal mudflats, and for a variety of fin and shell fish, some of which were harvested and sold to local restaurants. Its value as an open space was then less apparent, since it was surrounded by other open spaces. And its value as an educational and recreational resource was limited by the small local population and the presence of other estuaries nearby.

The Present

More recently the value of the Upper Bay to the county and the entire region has skyrocketed as a result of the destruction of many other estuaries, the "improvement" of much of the surrounding land, and the vastly increased population in the vicinity. At the same time, the quality of the estuary has been eroded by the diking of the upper reaches of the bay for salt production (with resultant destruction of extensive marsh habitat and heightened salinity of the water), by the added load of pollutants from storm drains, agricultural sprays, extensive powerboating and general urban conditions, and by the overcrowding of some species of wildlife due to destruction of comparable habitats nearby.

In spite of the reduced quality of many aspects of the Upper Bay, it receives heavy use from the millions living within easy reach. Thus we find that, although navigation over many parts of the bay is restricted due to diking, hundreds of residents use the remaining public water for power-boating and water-skiing. And, although fishing in many parts of the bay is impossible due to diking, or useless due to eradication of species, thousands of students from public schools, colleges and universities use the bay each year on field trips or from permanent research installations to study the remaining marine life. And, although many species of birds and animals formerly found in the bay in great numbers are now absent, like the Black Brant, or extremely rare, like the Canada Goose, Audubon chapters from all of Southern California schedule field trips to this, the last large tidal estuary between Morro Bay and Mexico. Over one thousand persons (some from as far away as San Diego and Barstow) visited the Upper Bay on a recent rainy Saturday to view the birds, the plants, and other manifestations of nature on a two and one-half hour nature walk sponsored by our group.

In short, the value of the Upper Bay to Southern California residents has increased sharply, even though the quality of the bay as a public resource has declined somewhat.

## The Future

Both the quality of the water in the bay and the nature of its use by the community are, in theory, under the control of the citizens of the state and the region, through elected and appointed official bodies. But pressure on the bay is sure to increase through population growth, rising land values, demand for water-related recreation, and the apparently irresistible urge to "develop" everything. Many of these pressures are in open conflict.

One possible course of events is clearly forecast by the series of financial and legal moves, extending back fifty years, involving the Irvine Company and the Orange County Board of Supervisors. These events point toward the eventual transfer of most of the Upper Bay tidelands from public to private hands, with subsequent dredging, filling and construction of a complex of commercial enterprises and costly dwellings which will be worth hundreds of millions of dollars to the Irvine Company. The public of Southern California will be left with small parks at the mouths of the flood control channels (where buildings cannot be economically built) and a biologically non-productive, bulkheaded channel and lagoon dominated by the overwhelming private interests on the filled tidelands. Many difficult questions remain unanswered in the plans released to date:

Where will the bass and halibut sought by sport and commercial fishermen come from if their rich, shallow nursery in the Bay is deepened and rendered sterile?

Where will the pintail and the widgeon prized by hunters in Washington, Wyoming or Alberta come from if their wintering grounds in the Bay are bereft of food and made noxious with gasoline slicks?

Where will the marine science students at UCI and Cal Tech, at Cal State Fullerton and Chapman College, at Corona del Mar High and the Santa Ana public schools (and over two dozen other educational institutions now using Upper Newport Bay) have to go to see a living, working estuary if the Bay becomes another Huntington Harbor?

Where will the heavily burdened runoff from 80,000 acres of Orange County land be spewed when the great natural machinery of the estuary no longer reduces it to nutrients for marine life forms?

These and other similar questions have broad impact on the quality of the Southern California environment. They have no answers in any plan or program yet made public by the Irvine Company or the Board of Supervisors or the County Harbor District. The lack of answers to the questions, or even serious consideration of them, bodes ill for the public interest in the Upper Bay.

Another, happier course of events can be dimly seen as a possible future alternative. The Constitution of California proclaims:

> Article XV Harbor Frontages, etc.
>
> "Section 1. The right of eminent domain is hereby declared to exist in the State to all frontages on the navigable waters of this State.
>
> Section 2. No individual, partnership, or corporation, claiming or possessing the frontage or tidal lands of a harbor, bay, inlet, estuary, or other navigable water in this State, shall be permitted to exclude the right of way to such water whenever it is required for any public purpose, nor to destroy or obstruct the the free navigation of such water; and the Legislature shall enact such laws as will give the most liberal construction to this provision, so that access to the navigable waters of this State shall always be attainable for the people thereof.
>
> Section 3. All tidelands within two miles of any incorporated

> city, city and county, or town in this State, and fronting on the water of any harbor, estuary, bay, or inlet used for the purposes of navigation, shall be withheld from grant or sale to private persons, partnerships or corporations....."

The public trust so clearly envisioned by the framers of the Constitution has already been seriously eroded in many parts of the state. Apparently valueless marshes and tide flats have been sold or otherwise transferred to private hands in years past, to turn up later as potential or actual marina sites worth many millions of dollars to the owners and developers. The maintenance of a public trust in the face of relentless economic pressure of this magnitude requires constant vigilance on the part of citizens, elected officials, and the court.

In the case of Upper Newport Bay, most of the steps necessary to remove the tidelands from public ownership, fill them, and allow a private corporation to develop them for profit, have already been accomplished. But it is still possible to halt and reverse this process, given timely, forceful action by the elected officials and the courts. If the Upper Bay were to be acquired and maintained by a public agency in such a way as to preserve and even enhance its present natural qualities, none of the forlorn questions listed above would have to be uttered. The people of California and the Southwest would be richer with each passing year in that which is most important in the long run - the quality of life.

## Our Plea

Gentlemen, we urge you to do everything in your power to retain for public use this matchless resource, and to protect the qualities of Upper Newport Bay which make it of inestimable value to our region. The active intervention of state and federal agencies will be required immediately to reverse the present trend toward the delivery of most of this resource into private hands, and its ultimate destruction as an ecological entity.

Charles P Greening, ~~PhD~~
Charles P Greening
Chairman, Friends of Newport Bay

# UPPER NEWPORT BAY: SOURCE MATERIALS

## ARCHAEOLOGY

Pacific Coast Archaeological Society Quarterly, Vol.2, No.2, April 1966. Contains reports on four bay area archaeological surveys, a summary of regional geography and hostory and extensive index. May be purchased for $1.50 at Bowers Museum, 2002 N. Main Street.,Santa Ana, Ca. Also available in local libraries. The Society's address is PO Box 926, Costa Mesa, Ca. 92627.

## BIRDS

Pettingill, O.S., Guide to Bird-Finding (West), Oxford Uni. Press, New York, 1953 (pp 89-90)

Pyle, R. L. "Annotated Field List-Birds of Southern California" Publiched by **author** for Los Angeles Audubon Society. Revised by Arnold Small, 1961.

Miller, A. An analysis of the Distribution of the Birds of California. 1951, Uni. of Calif. Publications in Zoology, Vol. 50,no.6.

## DEVELOPMENT CRITIQUE

Joint Committee on Public Domain of California Legislature, Committee Report of Findings:Upper Newport Bay Proposed Tidelands Exchange, 1967. Available on request from Joint Committee in Sacramento or Anaheim, office of Assemblyman Kenneth Cory, 1780 W. Lincoln, Anaheim. Valuable index.

## ECOLOGY

North, Wheeler. "Present and Future Ecology of Upper Newport Bay" 1968. Paper delivered by Dr. North, Professor of Life Sciences at California Institute of Technology and Kerckhoff Marine Laboratory in Corona del Mar. Available on request, Friends of Newport Bay, Box 4088, Irvine Station, Newport Beach 92664.

## GEOLOGY AND FOSSILS

Kanakoff, George and Emerson, W. Late Pleistocene Invertebrates of the Newport Bay Area, Ca. Los Angeles County Museum, Contributions in Science, No. 31. Available on order($1.50) from Museum Book Store, 900 Exposition Blvd.,Los Angeles 90007.Pub. in 1959.

## MARINE LIFE

Bane, Gilbert. Fishes of the Upper Newport Bay. 1968,Research Series No.3, Museum of Systematic Biology, University of Calif. at Irvine. Illustrated. Describes over 100 fishes. Available for $1.75 at University Bookstore, 4211 Campus Drive.,Irvine 92664.

Reish and Barnard. "Ecology of Amphipoda and Polychaeta of Newport Ba, Ca." Allan Hancock Foundation Publication, University of Southern California, Los Angeles

Stevenson, Robert E., and K.O. Emery. "Marchlands at Newport Bay, Ca." 1958 , Allan Hancock Foundation Publications, Occassional Papers, No. 20. University of Southern California Press, Los Angeles.

**FRIENDS OF NEWPORT BAY**

**BOX 4088, IRVINE STATION**
**NEWPORT BEACH, CALIFORNIA 92664**

## STATEMENT OF PRINCIPLES

1. The entire Upper Bay should be developed into a regional park with free access to all citizens, rather than being traded away to become an exclusive private development.
2. The patented lands within the limits of the Bay should be acquired for park purposes, eliminating privately owned lands within the limits of the park.
3. The existing public shoreline should remain in public ownership.
4. Public access should be developed along both sides of the bay.
5. The islands in the bay should be acquired for the public.
6. The area should be developed to provide for different educational and recreational patterns and to protect the environment of surrounding high-value homes.
7. Sufficient salt-water marsh, mudflat, and fresh-water marsh should be retained to provide for the needs of migratory birds and spawning of fish important to the maintenance of the natural resources of the Pacific Coast.
8. No development of the Bay should begin without public disclosure and discussion of alternatives.
9. Any plan for the Bay should be developed cooperatively by a committee formed of representatives of public and private organizations interested in the bay development.
10. We are opposed to the exploitation of an irreplaceable public resource for the benefit of the few.

# WHERE IS OUR BAY GOING ?

DO YOU KNOW THAT INTENSIVE DEVELOPMENT OF UPPER NEWPORT BAY IS SUPPOSED TO BENEFIT YOU? THE DEVELOPERS, IRVINE COMPANY AND ORANGE COUNTY HARBOR DISTRICT, SAY YOU, THE PUBLIC, WILL BE GIVEN FOUR AQUATIC PARKS AND A NAVIGABLE WATERWAY. YOUR OWNERSHIP OF MOST OF THE BAY SHORE WOULD BE TRADED AWAY TO IRVINE COMPANY FOR THESE BENEFITS. BUT YOU BETTER LOOK TWICE AT WHAT YOU ARE BEING GIVEN OR ELSE AN IRREPLACEABLE PART OF YOUR ENVIRONMENT WILL BE BURIED.

WILL YOU BENEFIT BY . . .

A BAY DOMINATED BY LUXURY WATERFRONT RESIDENCES AND COMMERCIAL ACTIVITY?

A BAY SQUEEZED INTO A CONGESTED, POLLUTION-PRONE CANAL?

BURIAL OF BAY HABITAT THAT NURTURES VALUABLE SPORT FISH, MARINE LIFE AND BIRDS WITH NO SIMILAR HOME IN SOUTHERN CALIFORNIA?

PARKS AND BEACHES AROUND STORM DRAIN AREAS AND AT THE BAY'S REAR SIX MILES FROM THE OCEAN?

A BAY STRIPPED OF SCIENCE RESOURCES USED BY SCHOOLS AND UNIVERSITIES THROUGHOUT SOUTHERN CALIFORNIA?

A BAY STRIPPED OF WILDLAND RECREATION VALUES THAT ALREADY SERVE THE PUBLIC?

IS THIS WORTH THE TRADING AWAY OF YOUR PUBLIC BAYFRONT FOR COMPANY BAYLANDS AROUND STORM DRAIN AREAS AND FOR THREE MARSH ISLANDS TO BE DREDGED OUT AS TIDELAND FILL?

IS THIS HOW YOU WANT YOUR COASTAL FRONTIER DEVELOPED - EXPLOITED AND FENCED WITHOUT REGARD TO LESSONS LEARNED ON LAND?

THESE ORGANIZATIONS SAY NO.
AUDUBON SOCIETY
ORANGE COUNTY ADVISORY COMMITTEE
  ON NATURAL LANDS CONSERVATION
OCEAN FISH PROTECTIVE ASSN.
SIERRA CLUB
ORANGE COUNTY MARINE DEALERS ASSN.

THESE SCIENTISTS SAY NO.

DR. CARL HUBBS
SCRIPPS INST.
OF OCEANOGRAPHY

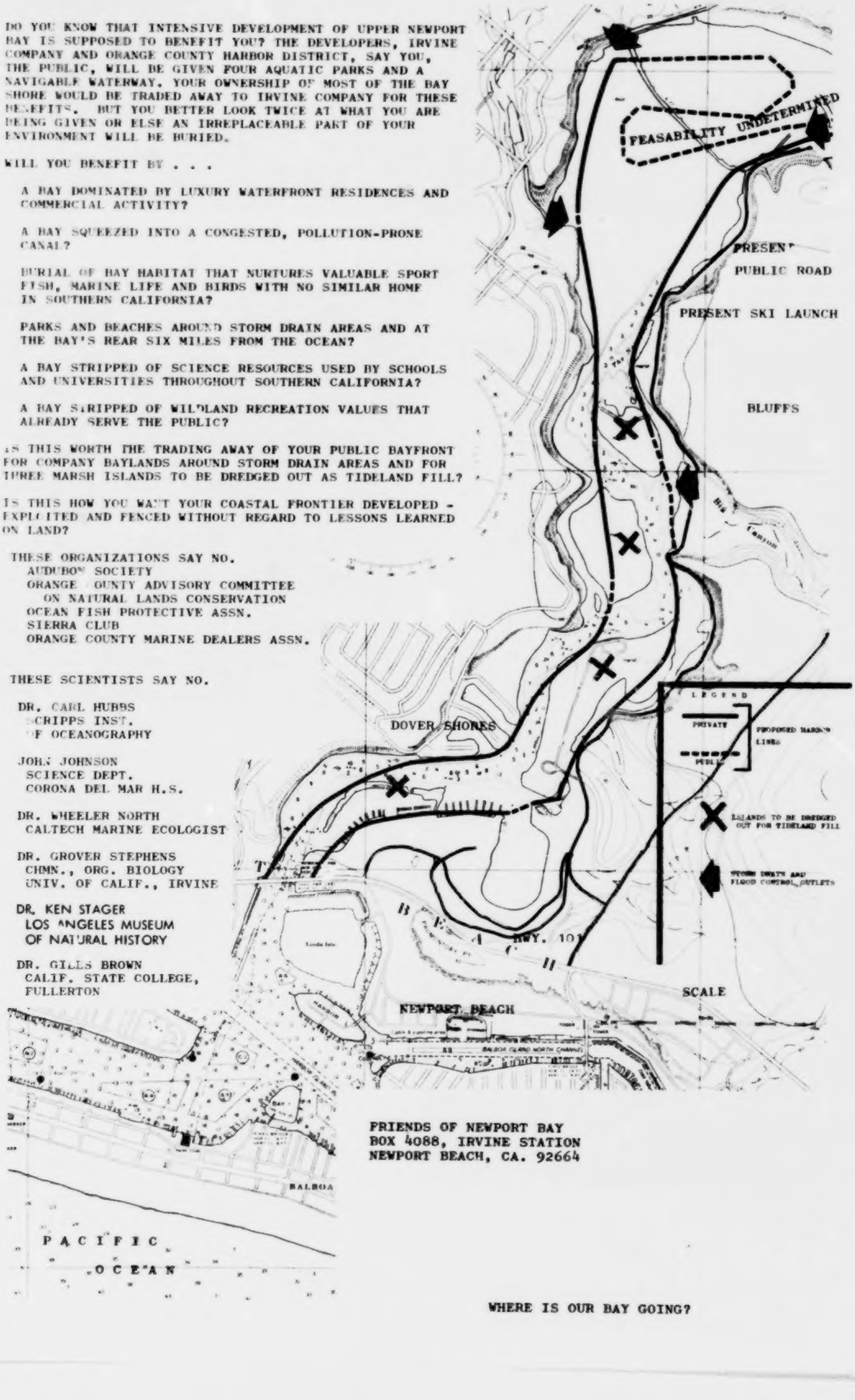
JOHN JOHNSON
SCIENCE DEPT.
CORONA DEL MAR H.S.

DR. WHEELER NORTH
CALTECH MARINE ECOLOGIST

DR. GROVER STEPHENS
CHMN., ORG. BIOLOGY
UNIV. OF CALIF., IRVINE

DR. KEN STAGER
LOS ANGELES MUSEUM
OF NATURAL HISTORY

DR. GILLS BROWN
CALIF. STATE COLLEGE,
FULLERTON



FRIENDS OF NEWPORT BAY
BOX 4088, IRVINE STATION
NEWPORT BEACH, CA. 92664

WHERE IS OUR BAY GOING?

THE BAY AS LIFE GIVER

## FROM LIFE TO DEATH

The bay is Southern California's last remaining estuarine-type environment. The enormous life-giving capacity of this environment nurtures an untold variety of marine life and over 100 species of migratory birds, including the beautiful avocet. Dredges and concrete bulkheads could yank birthrights of millions of birds and fishes and deny sportsmen, nature lovers, science students and children the last such wildlife stage in Southern California. **WE NEED MORE CRADLES OF LIFE, NOT LESS.**

## FROM PUBLIC RESOURCE TO PRIVATE DOMINANCE

The distinctive bay serves Southern California as a wildlands recreation area and a scientific laboratory for thousands of students and university researchers. The staff of the State Lands Commission says proposed development "would convert public waterways into a captive waterway primarily for the use of private residential boat owners who would occupy the created area and dominate the bay." The public would be left three miles of shore front, private owners up to 13 miles. **WE NEED MORE SHORE FRONT, NOT LESS.**

## FROM CLEAN BAY TO CONGESTED CANAL

The bay drains a critical portion of Orange County, 89,000 acres in all. It assimilates pesticides, fertilizers, silt and potential pollutants. It protects marine life and aquatic recreation in the lower bay as well. Constriction into a channel with residences, commerce and a 3,000-boat population could congest and pollute boating, fishing and swimming throughout the bay complex. Costly and restrictive siltation and pollution control could result. **WE NEED MORE CLEAN BAYS, NOT LESS.**

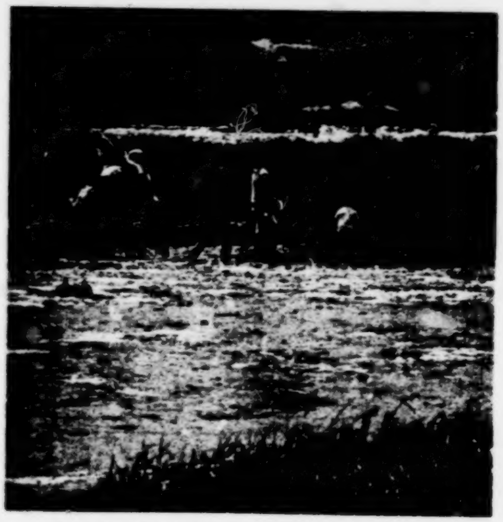
WILL THIS BE THE BAY'S GRAVESTONE?

**I WANT TO . . .** ___LEARN MORE ABOUT THE BAY
___JOIN FRIENDS OF THE BAY
___CONTRIBUTE

NAME________________________________________

ADDRESS____________________________CITY__________

(FRIENDS ADDRESS ON REVERSE OF COUPON)



THE BAY AS PUBLIC AND EDUCATION RESOURCE

## WHAT CAN YOU DO?

WRITE
Let public officials know your opinion.

NEWPORT BEACH CITY COUNCIL, NEWPORT BEACH
Possesses zoning and building permit purview.

ORANGE CO. BOARD OF SUPERVISORS, SANTA ANA
Involved in bay development agreement with Irvine Company.

ARMY CORPS OF ENGINEERS, LOS ANGELES
Ask for public hearings on bay dredge permits.

STATE LANDS COMMISSION, SACRAMENTO
Ask for reconsideration of bay tideland trade.

JOIN
Friends of Newport Bay sponsors bay tours, scientific panel discussions, speakers bureau and information campaigns. Dr. Wheeler North of Caltech and Kerckhoff Marine Lab in Corona del Mar co-ordinates the Science Advisory Committe. We need your help and participation. Send in the coupon and join today.

CONTRIBUTE
THE PUBLIC FIGHT FOR THE BAY COSTS MONEY. WE WELCOME YOUR CASH OR CHECK DONATIONS. PLEASE WRITE CHECKS TO FRIENDS OF NEWPORT BAY.

THE PUBLIC HAS A VITAL INTEREST IN THE DEVELOPMENT AND CONSERVATION OF UPPER NEWPORT BAY. LET'S SEE THIS INTEREST
.RECOGNIZED
.PROTECTED
.ENHANCED

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best available copy.

LEAGUE OF WOMEN VOTERS OF CALIFORNIA
INC.
126 POST STREET ROOM 512 SAN FRANCISCO, CALIFORNIA 94108 986-1532
MRS. JOHN O. AHERN, PRESIDENT

March 13, 1969

## STATEMENT ON WATER QUALITY MANAGEMENT FOR ESTUARINE AREAS IN CALIFORNIA

The League of Women Voters of the United States supported the passage of H.R. 25 last year as a tool in the protecting of our national estuaries. In California, as a coastal state, we particularly welcome this study of the effects of pollution on our bays and coastal waters. The League of Women Voters of California, with its 14,000 members, had studied water problems since 1959. In 1966 after considering the state's responsibility for water quality control, members agreed to support high standards for water quality, with responsibility for enforcement at the regional level under the State Water Quality Control Act. We have urged the state to provide more adequate budgets and staff, greater enforcement powers, and better coordination among the agencies responsible for water quantity and quality.

California's estuaries are inestimable in value, ranging from the great economic benefits of our ports to the recreational attractions of our beaches and the quiet haven of lagoons and mudflats for fish and birds. As the most populous state in the union with 20 million people, and one-half million more pouring in annually, we do face great pressure on land and water resources. San Francisco and Los Angeles and San Diego are located on estuaries which have developed into great ports. Near them are located great manufacturing and industrial complexes. These estuaries have a different value from those not yet developed and will continue to serve as centers of commerce and industry, but improvements in municipal and industrial waste management should in time bring water pollution under control.

During the past two years while California has been establishing water quality standards and policies to meet the requirements of the Federal Water Pollution Control Administration, the League of Women Voters of California has supported the program to enhance the qualities of our water. We think Californians want and will pay for clean water in our rivers, deltas, harbors and along our coasts. There is no doubt the federal interest has been a stimulant to raising state standards and objectives of water quality. However, we see the need for sufficient manpower and money to implement these legislative goals. Because of the regional boards heavy workload in formulating and adopting water quality control policies for interstate and coastal waters, there was a decline in staff inspection for waste discharge requirement compliance (from 4553 in period 1965-67 to 3028 in 1966-67). Sufficient staff and money for enforcement are as important as standard setting.

Realizing that there are few remaining undeveloped estuaries in California, we would like to preserve those undistrubed bays and lagoons for their unique values in supporting special biota, migratory and resident birds and fish. But the sound of the bulldozer and boatowner are loud in the land and often drown out the voice of the conservationist. The federal government might help the state resist some of the local pressure groups by establishing protected estuaries as it has wilderness rivers or redwood parks.

In general, we think California has done a good job in controlling pollution since passing the Dickey Water Pollution Act of 1949, changed to the Water Quality Control Act in 1965. However the increasing pressures of population, industry and agriculture increase the waste discharges.

## LOS ANGELES

Los Angeles harbor, for instance, leads all other ports in the Western U.S. in total tonnage handled. Its beneficial uses have been defined on shipping, yacht anchorage, industrial cooling and whole fish handling. Long Beach wishes to upgrade the water quality standards to permit fish life to thrive. Waste waters from nearby oil refineries (500,000 barrels a day of oil field brines to into the harbor) and oil spills help deplete the dissolved oxygen. There is evidence that degraded inner harbor water continues to degrade higher quality surrounding waters in Long Beach Harbor, Los Angeles outer harbor, and adjacent coastal waters. Aerial inspection shows discolored water flowing outward from the mouth of Los Angeles Harbor. The dark waters of Dominguez Channel, with industrial waste from oil companies, as well as turbid water from Slip 5 and the West Basin, flow into the inner Harbor and from there into the outer harbor and ocean. The Report of the Los Angeles-Long Beach Harbor Pollution Control Committee, published in November of 1968 states:

"All waters in this area (Los Angeles Inner Harbor north of Vincent Thomas Bridge) have failed to meet present objectives for dissolved oxygen some of the time; waters at the mouth of and in Consolidated Slip, and in Slip 5 have failed to meet the present objectives most of the time. Waters in the West Basin have not met present objectives in most instances in the past three years."

The report also states, "In 1963 and 1964, waters in the Main Channel generally were meeting present objectives. For the last three years, however, waters have not met present objectives most of the time."

Regarding water transparency, the Report states, "Tests illustrate the general reduction in water clarity with increased distance from open ocean." On a 1968 tour of the harbor made by several members of the League of Women Voters, we observed this condition to be true.

At a recent Hearing of the Water Quality Control Board, divers testified that solid materials flowing from the Harbor are deposited on the ocean floor as far as four miles oceanward from the entrance to the Harbor.

The Los Angeles Basin is one of the fastest growing population centers in the United States. The disposal of wastes produced both by people and industry is becoming an increasingly difficult problem and the ocean often seems an easy and accessible dumping ground. What cumulative effects will we see on the ocean plants and life in the next fifteen - twenty years if the present standards are not raised? And if there continues to be more people, more applications to discharge, more industry, and more dischargers?

It is time now to be concerned with the future of our beaches, for the future of facilities for boating, fishing, and other water-related sports. A clean and attractive coast line is a community asset and our growing population will need all possible recreational facilities. A blighted water-front effects the community as much as a blighted neighborhood.

Since population and industry in California have tended to concentrate in coastal communities, 65% of California's sewage and industrial wastes are discharged to salt water. We must be concerned with the effects of this on our marine environment. Catalina island, for instance, dumps raw sewage into the ocean. The treated sewage from our coastal cities is responsible indirectly for the gradual decline of Southern California's coastal seaweed forests. The sewage supports abnormally large population of sea urchins that destroy the young kelp plants before they get a chance to grow. The Allan Hancock Foundation of University of Southern California completed a synopsis of the state of coastal biology, geology, chemistry and oceanography in 1965 for the State Water Quality Control Board but did not secure much direct information concerning the effects of existing outfalls. Another such survey was recommended at 15 year intervals and certainly we see the need for more research into the effects on our marine environment. The federal government could help the states with oceanic research either through grants or by direct studies. The League sees the need for coordination and continuity in such research planning.

The recent disaster from the oil wells in the Santa Barbara Channel shows us that we need far more information on what kind of industrial use of our ocean resources is appropriate and what safeguards the government should require. It seems we need more exchange of information of this kind between the state and federal government. The citizen can reasonably expect more sharing of expertise at the different levels of government involved. Since both the state and nation have interest and responsibility for the tideland oil development, there should be some institutional mechanism to provide cooperative planning, development and protection of our coastal zones.

The League also thinks we need further research into the possible effects of thermal pollution or radioactive poisoning from the installation of a large nuclear desalination plant at Bolsa Island, near the heavily-populated coastline. Perhaps the dangers have been over publicized but if so the federal government should initiate a program of public education.

## SAN FRANCISCO BAY

The San Francisco Bay presents one of the most complex estuarine situations in the world, a large sea inundated valley combined with the drowned mouth of the giant Sacramento-San Joaquin River systems. Problems of pollution began early--over a hundred years ago when the placer cuts of the gold country began bringing vast quantities of silt into the delta and the bay--a process still going on today. Along with increasing industrial and human wastes, indescriminate dredging and filling in the region since that time have placed these waters in a position of jeopardy, which some scientific authorities believe is now irreversible.

Accurate documentation of modern pollution in the estuarine and bay ststem has been developed since the establishment of the Regional Water Quality Control Board in 1950. Over the years this Board has exhibited a remarkable ability to persuade (sometimes with the iron fist in the velvet glove) municipal and industrial polluters to attempt to solve these problems. (A notable exception to this has been San Francisco, where the interaction of antiquated storm and sanitary sewers, a situation until recently largely ignored by politicians and public alike, has resulted today in an intolerable situation). However, the point is not that small or major violations occur, but the fact that these waters cannot continue to absorb wastes-- both from the metropolitan area and the agricultural lands draining into the eastern delta--without potential catastrophic results. As it stands today, the local Regional Water Quality Control Board seems to be fighting just to stay one step ahead of disaster.

The uses to which we believe the waters of the Bay Area should be dedicated are water-related recreation and industry (including shipping and commercial fishing), as well as the preservation of fish and other forms of wildlife. Dredging has been and will continue to be necessary, but it should be planned and executed to achieve the minimum amount of disruption to natural resources and maximum attention paid to the placement of spoils--issues heretofore considered, but not within the context and depth of the total ecological scene until the advent of the Bay Conservation and Development Commission.

However, to achieve the optimum of beneficial uses of water within this area only the implementation of massive projects such as those soon to be proposed by the Bay-Delta Study: namely (1) adequate treatment facilities for the agricultural wastes of the forthcoming San Luis Drain; and (2) a comprehensive regional system for liquid waste disposal. In addition some means must be made available to prevent the further intrusion of salt water into inland areas. (A sophisticated collection and treatment system combined with (2) above, suggests a possibility in this area).

Management of this massive estuary has in the past and must continue to involve all levels of government both in planning, finance and development. Increasing concern on the local level revolves around fears that our present State water planning may be geared more to the contract and sale of water rather than to preservation and improvement of existing water quality in the Bay Area; that the Federal government will construct the San Luis Drain without adequate treatment facilities (let alone spend a much less impressive sum on methods of control sewage from their large naval vessels in the Bay itself). Some thoughtful citizens are also concerned about local recalcitrance to the prospect of developing a regional disposal system, if and when it is proposed. Meanwhile, one of these days, we may wake up to salt-laden rivers leading to a dead sea of red algae inside the Golden Gate.

Today the record in California seems to show that we have controlled pollution by establishing state authority, decentralized through use of regional boards with the responsibility to coordinate the efforts of all the state and local agencies involved. The League believes that where localities and states are doing well in managing their estaurine areas, they should be left in charge. However the experiences of San Diego and San Francisco suggest the need for a regional plan and regional authority to effect improvement. If this is not possible, the state should assume the responsibility for our estuaries and coastal zones. Since the federal government is also concerned with these waters,perhaps some kind of federal-state commission or inter-agency commission could be developed. Another federal review of the estuary system in ten years would indicate whether progress or deterioration has taken place under state management.

The League of Women Voters of California appreciates the opportunity to present testimony for this national study of the Federal Water Pollution Control Administratic We hope the results will be widely publicized and presented to the citizen as well as to Congress for the sake of public understanding and informed concern with the future of our estuary systems.

3028 Cavendish Drive,
Los Angeles, Calif. 90064

March 13, 1969

Mr. Irving M. Terzich
Pacific Southwest Region of the
Federal Water Pollution Control Admin.
760 Market St.,
San Francisco, Calif. 94102

Dear Sir:

At the request of Miss Laura Lou Jenner, President of the Los Angeles Audubon Society, I have assembled some information regarding the tidal estuary at Malibu Creek, Los Angeles County.

Although a relatively small area compared with other estuarine waters, Malibu "lagoon" is an integral part of the natural coastal habitat remaining in southern California. During the fall, winter, and spring months, hundreds of gulls, shorebirds, terns, and smaller numbers of loons, grebes, coots, and ducks utilize this area for resting and feeding. The creek itself is bordered in places by riparian woodland and fresh-water marsh (tules and cattails) which further increases the variety of birds which utlize the area. The highway bridge across Malibu lagoon is the site of one of the largest colonies of Cliff Swallows in southern California. The swallows gather mud for their nests from the borders of the lagoon, and search for flying insects in the air above the waters.

In addition to utilization by birds, the tidal pools on the ocean side of the beach are amongst the best along the southern California coast as they teem with sea anemones, crabs, shrimp, small fishes, and the like. During very low tides, the rocks at this location are exposed and birds by the hundreds swarm over them in search for food.

Perhaps the most important reason for protecting this area is the educational value of the situation. Its proximity to the city enables thousands of school children and even groups from local colleges and universities to study coastal life there. Groups from the Los Angeles Museum of Natural History and various outdoor, nature, and conservation groups make regular field trips there, to say nothing of hundreds of unattached people who simply like to watch birds and study tide pool life. With proper and careful management, it could become one of the most important research and educational wild areas in our part of the state. The adjacent Ringe estate, with its planting of trees and shrubs is a veritable trap for migrating birds and a banding station established there, similar to the one now at Point Reyes National Seashore, would yield invaluable information about bird migration and would be a natural complement to the Point Reyes Station.

In light of the accelerating diminution of estuarine waters of the California coast, may I urge your group to give the most serious attention to the preservation and implementation of the area known as Malibu lagoon. Thank you.

Very truly yours,

Arnold Small

Arnold Small, Biology Teache
Palisades High School

*Los Angeles Audubon Society*
INCORPORATED 1951
FOR THE PROTECTION OF BIRDS
AND OTHER WILDLIFE, PLANTS, SOIL AND WATER

7377 Santa Monica Blvd.
Los Angeles, California 90046

March 13, 1969

Mr. Irving M. Terzich
Pacific Southwest Region
Federal Water Pollution Control Administration
760 Market Street
San Francisco, California 94102

Dear Mr. Terzich:

This letter is accompanied by testimony prepared by two members of our society to be included in your report on the status of pollution in the Nation's estuarine areas. Another member, Mr. Arnold Small, is submitting testimony for the society, which is being sent under separate cover.

We do not presume to be biologists or trained scientists armed with technical data on the economic importance of estuaries. We are, however, individuals who spend varying amounts of time in the field studying all phases of the natural environment. Although our primary interest is birds, we recognize the fact that birds, and other animals, cannot exist without adequate habitat. The biotic community of our estuaries is one of the most vital, and most threatened, in the ecosystem. This testimony simply presents some observations on a few of the Southern California estuaries in an attempt to show why these areas should be preserved in their natural state.

Thanking you for providing us with an opportunity to express our opinions, and wishing you success in the preparation of your study, I am

very truly yours,

Laura Lou Jenner

(Miss) Laura Lou Jenner
President

## THE SEAL BEACH - ANAHEIM BAY MARSH

The Seal Beach Marsh, for our purposes, is that relatively underdeveloped marshland, inland from the coast highway at the bridge over the Anaheim Bay Channel. Almost all of this marsh is in the Naval Weapon's Station and is in a virgin state except for a Signal Oil Company drilling site and its long built-up entrance road. The lower and central portions are tidal salt marsh with the dominant plant being pickle weed (Salicornia). The westerly and peripheral areas have sparse salt grass or are barren because the tidal flow to these areas is restricted.

The resident birds of this marsh are not great in number of species, but are of great importance. The endangered Light-footed (Clapper) Rail formerly occurred here in large numbers but is greatly reduced now due to the development of the eastern half of the marsh (Huntington Harbor) with consequent human disturbance and dredging of the channel. Actual numerical observations taken over a period of years at extreme high tide (pickleweed and grasses completely covered with only tumbleweeds and flotsom emergent) can not be considered as censuses, but the large difference in the order of the numbers shows a tremendous drop in the rail population:

10 January 1959 - 200 Clapper Rails (Audubon Field Notes - Small
6 February 1959 - 50 Clapper Rails (A.F.N. - Zimmerman)
18 January 1965 - 7 Clapper Rails (A.F.N. - Suffel)
1 September 1968- 13 Clapper Rails (A.F.N. - Mancke)

Development of Huntington Harbor occurred in the period between the first two and the last two observations. This rail is currently being considered by the Fish and Wildlife Service for inclusion on the "Endangered Species List" due to progressive destruction of habitat.

During migration, and to a lesser extent in winter, this marsh is a resting and feeding area for thousands of ducks with Pintail, Widgeon and Teal predominating. Non-game birds find a similar haven here, and it is not unusual to see hundreds of night herons, egrets, gulls and terns at rest or feeding in the tidal channels.

After the proposed developments at Bolsa Chica and Upper Newport Bay are completed, this will be the only major coastal marsh between Pt. Mugu in Ventura

County and Oceanside in San Diego County. These coastal marshes are far more than resting areas for migrant birds. They are nurseries for small fishes, many of commercial or sporting value. They contain a whole interrelated world of small organisms - insects, worms, snails and crustacea, which is unique. Most importantly, they are the last refuge for the Light-footed Rail, a highly specialized endemic species of Southern California.

--- G. Shumway Suffel

Funk and Wagnall define a naturalist as one who is versed in natural history. A bird-watcher is a naturalist who enjoys studying the ways of nature through observation. There are a great many people who fall under this definition. We naturalists find within our fascination with the ways of nature, great philosophical truth based upon the laws of creation under which we all live. We gain pleasure and strength from this insight.

In pleading for the preservation of our few remaining estuarial habitats we are pleading for those basics of the land and sea with which the natural environment is built. One cannot find truth in artificiality.

At Upper Newport Bay we observe actually thousands of forms of life, from the microscopic to the human. We observe their interdependence, and we find pleasure in their beauty.

Beyond those of us who call ourselves naturalists, or bird-watchers, are the millions who only know that they need to get away from the noisy dirty city environment. Consider the number of campers and trailers in use everywhere. The owners who bought them felt that need. Even the boat owners who feel they must have the estuaries to berth their boats, bought their boats so that they could get away, "next to nature". They just do not realize that the estuary is the necessary source of the "nature" they seek.

The estuary is the goose which lays the golden egg. We plead for her life.

The following is a listing of birds commonly seen at Upper Newport Bay. It includes residents, seasonal residents, and migrants.

## ON THE WATER

Widgeon
Pintail
Scaup
Ruddy Duck
Shoveler
Bufflehead
Green Winged Teal
Red Breasted Merganser
Cinnamon Teal
Goldeneye
Blue Winged Teal
Canvasback
Gadwall
Mallard
Ring-necked Duck
Canada Goose
Coot
White Pelican
Northern Phalarope
Wilson's Phalarope
Ring-billed Gull
California Gull
Bonaparte's Gull
Herring Gull
Western Gull
Pied-billed Grebe
Eared Grebe
Horned Grebe

## ON THE SHORE

Willet
Western Sandpiper
Least Sandpiper
Marbled Godwit
Long Billed Curlew
Avocet
Black-necked Stilt
Dowitcher
Killdeer
Dunlin
Black-bellied Plover
Whimbrel
Greater Yellowlegs
Spotted Sandpiper
Sanderling
Semipalmated Plover
Ruddy Turnstone
Snowy Plover
Snowy Egret
American Egret
Great Blue Heron
Green Heron
Horned Lark

## IN THE REEDS

Virginia Rail
Clapper Rail
Sora
Snipe
American Bittern
Long-billed Marsh Wren
Song Sparrow
Yellowthroat

## IN THE SKY

Red-tailed Hawk
White-tailed Kite
Turkey Vulture
Golden Eagle
Marsh Hawk
Sparrow Hawk
Osprey
Raven
Crow
White-throated Swift
Barn Swallow
Rough-winged Swallow
Cliff Swallow
Forster's Tern
Least Tern
Caspian Tern
Elegant Tern

## IN THE TREES AND SHRUBS

Black Phoebe
Brown Towhee
Rufous-sided Towhee
Lawrence's Goldfinch
Lesser Goldfinch
American Goldfinch
Savannah Sparrow
White-crowned Sparrow
Anna's Hummingbird
Black-chinned Hummingbird
Costa's Hummingbird
Allen's Hummingbird
Rufous Hummingbird
Meadowlark

Cactus Wren
Cowbird
Flicker
Great Horned Owl
Barn Owl
Shrike
House Finch
Starling
Mockingbird
Mourning Dove
Spotted Dove
Bullock's Oriole
Cedar Waxwing
Blue Growbeak
Phainopepla
Brewer's Blackbird
Roadrunner

— Richard S. Wilson

# HAS THE DEATH WARRANT BEEN SIGNED?

Has the live bait sportfishing industry been sentenced to death? Is there any real hope that the death warrant will not be carried out?

It is a deadly fact that the live bait sportfishing industry, if not given relief from pollution in harbor waters, may not exist five (5) years from now. Waste water and chemical affluents discharging into harbor waters has made what was once prolific bait areas completely barren. In addition, harbor developments such as oil islands and land fill for new piers have taken their toll of former bait grounds.

Bait boats are still able to operate inside the breakwater, but on a greatly reduced scale. That which remains is being reduced in number virtually every day. To better understand what was, and what is today due to the death-dealing encroachment of water pollution, a brief history of the live bait business over the past 20 years is in order.

In the late 1940's and early 1950's there were fourteen (14) live bait boats operating in the combined Los Angeles-Long Beach harbors -- some independent, others under contract to various landings. All boats fished every day. For the record, they were the Jackie Boy, Orca, Sunshine, O & K., Fighting Bob, Elinore C, Coeur d'Alene, Sun Beam II, Uranis, Nierad, Aleen II, Dixie Lee, Geary, and the Standard. Each boat had a four to six man crew.

Today, in the year 1969 in the combined two harbors -- only five (5) bait operators are left. Five!

What brought about the demise of this industry?

Harbor water pollution!

liam J. VERNA CAPT. of LIVE BAIT BOATS
45 E. ARTESIA Blvd LONG BEACH, L.H HARBOR
ng BEACH. CALIF 90805

Many species of fish went to make up the daily catches for each boat. The outer harbor was especially prolific in queen fish, white croaker, smelt, four or five kinds of perch, blue mackerel, jack mackerel, sardines and anchovies. All species spawned back in the inner harbor. It was not unusual for a catch to number 20# to 30# halibut, sea bass, spot fin, or yellow fin with the bait. To see one species only of the fish mentioned in a bait net today is a rarity!

As the water in the harbor became more and more saturated with affluents and sediments of undesireable compounds, the majority of species either left the harbor or died in the polluted water. Many fish used to spawn in the harbor, but today no evidence of young fish can be observed. Mussles, once common on piling and rocks up to six inches in length, could be found almost anywhere. Today, one has to really search to find only a few. And these are very small.

For some reason the anchovie has fought extra hard to resist this change of environment. But unfortunately, he has no chance of winning his uphill fight. Up until three years ago anchovies could, and did, live in the Los Angeles inner harbor. They managed to exist quite awhile, but finally they succumbed to poisons they absorbed.

Any bait found then in the inner harbor (Cerritos Channel) was what bait haulers called 'dry bait', which means anchovies that have no body slime and very loose scales making the fish extremely weak. This bait is not found in the outer harbor. As it would take many days for bait to become healthy, the bait once in, does not come out. This was three years ago.

Today, at no time will bait live 'live' in the Los Angeles harbor from the main channel on back to the inner harbor.

Proof! One instance. The bait for Norm's Landing, located in the main channel by Ports of Call Village, has to be supplied each trip after the bait boat clears the main channel. Reason 10 to 15 minutes in the main channel and ALL bait is DEAD!

The Independent Press Telegram, in a Thursday, January 23rd article, stated fish safety could cost $3.5 million dollars yearly. The figure is impressive, but small compared to the cost realized in the loss of sportfishing and related industries - not to mention the loss to commercial fishermen when there is no bait for summer tuna fishing.

Long Beach has made a valiant effort to clean up its water. It has been very effective in the area from the former Pontoon bridge to Pierpoint Landing. We now have the best water in years.

But from the Pontoon Bridge into Cerritos Channel is another story. This is not Long Beach's fault.

The Los Angeles flood control is still a producer of 'bad' water. Prime example the delta of the flood to Rainbow Pier at one time was prime bait area. It has now succumbed to extreme pollution.

A fast-approaching, death-dealing invasion of pollution in the once rich waters of the Southland is a real and imminent threat to much of this region's ocean-supported economy. The sentence of death has been imposed! Only a reprieve given by concerned public and officialdom can stay the execution of water life, and livelihood of men and industries depending on the sea for their lives and living.

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R.F.D. Box 20-F,
Del Mar,
California 92014.
March 12, 1969.

Mr Irving M. Terzich,
Pacific Southwest Region,
Federal Water Pollution Control Administration,
760 Market Street,
San Francisco, California 94102.

Dear Mr Terzich,

Enclosed is a written statement concerning the pollution of Los Penasquitos Lagoon. Although it does not differ substantially from the oral statement presented at the Los Angeles meeting last month, the written report does include some additional numbers for the nutrient levels that were only briefly mentioned and an additional paragraph suggesting some actions that might be taken to solve some of the problems that were discussed.

In preparing your final report, I do not know whether you include both the written and oral statement of a particular individual. However, if only one statement is entered, I would prefer that the written report be selected.

Yours sincerely,

Peta Mudie

Mrs Peta Mudie.

Submitted by Mrs Peta Mudie
Torrey Pines Wildlife Association.

# Los Penasquitos Lagoon: Its recovery from eutrophication following the restoration of tidal action.

Los Penasquitos Lagoon, sometimes incorrectly called Sorrento Lagoon, is situated near the northern limit of San Diego City. The total area of the lagoon-salt marsh complex is 312 acres; of this, approximately 100 acres is a salt pan area which is inundated only after heavy rains or at extreme high spring tides. The western half of the lagoon lies within the boundary of the Torrey Pines State Reserve. From the park trails, the lagoon provides a panoramic view of broad stretches of open water, marshland and winding creeks, thus forming an integral part of the aesthetic enjoyment of the park. The estuary is also the resting site of thousands of shore birds and waterfowl that migrate along the Pacific Flyway each year and is the feeding ground of resident birds such as the great blue heron, gallinule and white-tailed kite. The salt marsh vegetation provides a ground cover for a wide variety of small mammals and is the summer browsing area of mule deer.

In common with other Southern Californian lagoons, however, the Los Penasquitos estuary tends to become cut off from the ocean for long periods of time. This is the result of a combination of low river inflow during the rainless summer and the deposition of sand at the mouth by longshore currents and storm waves. Historical records also indicate that man-made obstructions such as the Pacific Highway and the Santa Fe railroad have altered the natural drainage pattern of the lagoon and accelerated the rate of sand bar formation. Once closed, evaporation from the lagoon results in a hypersaline condition during which the water salinity may rise to 63 ‰. This high salt concentration causes the death of most of the aquatic organisms, thus substantially reducing the value of the lagoon as a wildlife feeding area.

Since 1960, rapid urbanization and development of the areas adjacent to the lagoon has led to a dramatic rise in the amount of sewage effluent discharged into its waters. By 1965, over 0.75 m.g.p.d. was ~~being~~ entering the lagoon as a result of which the wetted area of the lagoon doubled. Approximately 68 acre-feet of effluent overlay the denser saline water and formed large ponds in areas that were formerly dry salt flats. Although the effluent received secondary treatment, it carried a high nutrient load and between 1963 and 1965, the total nitrogen content of the water in some areas rose from 1.17 to 4.84 mg/l while the ortho-phosphate content increased from 0.2 to 2.4 mg/l. This nutrient enrichment promoted the development of phytoplankton blooms and extensive mats of filamentous algae formed on the surface of the water. Dense growths of cattails and bulrushes began to block the channels and mosquito and midge populations proliferated. Within two years an inch-thick layer of sludge had formed as a result of this eutrophication and the dissolved oxygen content of the bottom water in these areas dropped to less than 2.5 mg/l.

Following these adverse changes, the County Health Department found it necessary to conduct an extensive spraying program in the lagoon to reduce the mosquito and midge populations that had become a public nuisance and health hazard. More than 15,000 gallons of a chlorinated hydrocarbon insecticide, Baytex, were sprayed on the lagoon in a single year. In addition, 150 pounds of herbicides were applied in an attempt to facilitate the mosquito control. In economic terms, the mosquito spraying alone required over 1,200 man-hours of labour in addition to the cost of the spray. In terms of environmental pollution, the potential danger of biocides are well known.

Other adverse effects following the eutrophication were strong hydrogen sulphide odors that brought complaints from visitors and residents while alarmed parents forbid their children to boat in the lagoon. A census of the aquatic fauna in 1966 revealed that no living molluscs or crustaceans remained in the lagoon although the shells littering the banks indicated that they had been abundant. Only five species of hardy fish survived in the highly eutrophic water.

Concern over this situation prompted the Torrey Pines Wildlife Association, a local conservation group, to investigate means of alleviating the pollution. The cheapest short-term solution seemed to be to restore tidal action in the lagoon by bulldozing a channel through the sandberm at the mouth but no support could be found from local public agencies for such a simple solution to the problem. However, in January 1967, when heavy rains caused the lagoon to overflow on the inland edge, the City Road Maintenance Department made a small cut in the sand bar at the mouth. This was sufficient to release the lagoon water which eroded away a deep channel at the mouth and this entrance remained open for the rest of the year.

By the following spring, however, a low sand bar had begun to build up and this eventually again cut off the tidal flow. This time the Wildlife Association managed to persuade the State Parks and Recreation Department to work on the bar with a small bulldozer and a D-6 Caterpillar. Several abortive attempts were made to establish a permanent channel by cutting through the beach but these failed each time. A successful method was finally worked out of releasing the impounded water shortly before a low spring tide by establishing a channel at the inland edge of the sand bar. The erosive action of the escaping water carved out a broad channel through the beach which subsequently worked its way to the [illegible] side of the mouth and carried a substantial portion of the sand plug out to sea. Tidal flow has continued in the estaury up to the present time. The whole bulldozing operation involved about 70 man-hours of labour at a total cost of approximately $1,500. Of this, it was estimated that two-thirds of the time and money were wasted on the early phase of unnecessary channeling and redundant sand transport.

The consequences of the lagoon opening were quite dramatic. The nitrate and phosphate content of the water fell to between a quarter and a half of their previous values, indicating that tidal flushing removes a large portion of the nutrient load from the lagoon. The unpleasant odors disappeared and the children enjoyed swimming at the mouth of the lagoon. Mosquito control was reduced to a few hours of spraying in small areas of impounded water near the high tide level. The mud flats now support populations of jacknife, gaper and soft-shell clams as well as rock oysters, bay mussels, scallops and crabs. Six species of shrimp have been recorded and a total of seventeen species of fish. The fish include large numbers of important species such as the California halibut, corbina, opaleye and spotfin croaker. Waterfowl abound in the inland areas of the estuary and large flocks of shore birds feed on the mudflats at ebb tide.

The history of Los Penasquitos Lagoon shows that contrary to the opinion of local engineers, it is economically feasible to maintain a tidal flow in Southern California's small estuaries. Annual maintenance of the entrance channels would most likely be necessary but the costs might possibly be defrayed by the agencies currently responsible for the biocide spraying programs. The benefits of adequate tidal flushing are obvious:

1. It substantially reduces the rate of eutrophication which is the chief cause of pollution in the lagoons.
2. It eliminates the nuisance problems of mosquitoes and odors that have been associated with these lagoons over the past five years.
3. It alleviates the necessity of adding large quantities of biocides to our already contaminated ocean waters.
4. It converts these coastal cesspools into sanctuaries for wildlife and provides nursery grounds for fish that will later form part of the ocean catch.

At present, the general public attitude toward the series of small lagoons between Newport Bay and Mission Bay is that they are worthless as such and simply occupy valuable lowland development sites.

It is suggested, however, that a greater long-term benefit would be derived from restoring the potentially valuable natural environment in at least some of these lagoons and converting them into green belts in the overpopulated coastal area. To achieve this, a temporary moratorium must be placed on private development in the lagoon areas. The public must be educated as to the ecological significance of estuarine areas and a comprehensive program of research be carried out to investigate the potential value of each lagoon. Subsequent development of the lagoons should then be controlled by a single co-ordinating agency and carried out on a rational and well-planned basis rather than in the piece-meal, short-sighted manner that exists at present.

## SIERRA CLUB - SANTA LUCIA CHAPTER

It is respectfully requested that the following statement be included in the written record of the joint hearings by the California Water Resources Control Board and theFederal Water ~~Control~~ Pollution Control Administration in the matter of Water Quality Management for Estuaries.

Except to stress our general support of, and interest in, all programs designed to protect and preserve the remaining national estuarine areas, we will confine our statement to the present status and possible future hazards that face the Morro Bay Estuary in San Luis Obispo County of the State of California. Because the State Resources Agency thru it's Dpartments of Fish & Game, and Parks & Recreation, has published complete and authoritative studies of Morro Bay, it would be repetitious for us to recite again the values and beneficial uses of this estuary.

Morro Bay is the only naturally landlocked harbor between San Francisco and San Diego. It is formed by the estuaries of Chorro Creek and Los Osos Creek and separated from the Pacific Ocean by scenic dunes and sand spit and Morro Rock. Though small, almost every type of sea environment is represented plus unique estuarine habitat and outstanding wildlife resources. These features make it a national, as well as a state or local natural asset.

Because of its small size, easy accessibility to large urban populations to the north, south and east, and the fact that it is bordered by communities in the early stages of rapid development, it is peculiarly sensitive to rapid deterioration if present trends continue. Wherever you look today around the bay, you will see the examples of the practices that have blighted the American landscape. Most spectacular of these is the bulldozed hillside on the south side, subdivided for development and stripped of all its natural protective cover, without any planning for surface drainage; and consequently already a major hazard to the integrity of the bay.

It is a sad comment on public policy when we continue unchecked the creation of the blighted communities of the future, while we spend billions to try to rehabilitate what these policies have ruined in the past.

That the State Legislature shares our anxieties about Morro Bay is proven by Concurrent Senate Resolution No. 176 passed in the 1966 First Extraordinary Session. The product of that Resolution is the Report on the Natural Resources of Morro Bay and Proposal for Comprehensive Area Plan. Members of the Santa Lucia Chapter assisted in its preparation by the Department of Fish & Game. Tragically, no public official has lifted a finger to implement the recommendations of that Report in the two years that have elapsed since its publication. It is our judgment that unless they areacted upon, theMorro Bay Estuary is doomed to destruction as an ecological entity.

We therefore urge upon the officials and agencies responsible for these hearings, that in every way possible as defined by your legal areas of action, you undertake to support and activate the recommendations of that Report.

## SIERRA CLUB - SANTA LUCIA CHAPTER

None of the problems discussed is more urgent than the need to organize, fund and give jurisdiction over all future planning for the Morro Bay regional area to a Morro Bay Conservation and Development Commission. Regional authority and planning is the only way to halt and prevent the piecemeal destruction now under way.

It needs to be emphasized also that such a Commission will be a hopeless fraud as far as changing present trends is concerned, unless thepractice of loading it with representatives of the economic exploiters responsible for misuse and pollution of the environment be avoided. Environmental scientists, biologists, planners, architects, conservation and citizen groups must be dominant in its composition.

Respectfully submitted,

Lee Wilson

Lee Wilson - Chairman Santa Lucia Chapter

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SCHOOL OF BIOLOGICAL SCIENCES
DEPARTMENT OF ORGANISMIC BIOLOGY

IRVINE, CALIFORNIA 92664

February 11, 1969

Mr. Irving M. Terzich
Pacific Southwest Region
Federal Water Pollution Control
  Administration
1760 Market Street
San Francisco, California 94102

Dear Mr. Terzich:

I understand the Federal Water Pollution Control Administration will have a public hearing in Los Angeles on February 25 and 26 and that the agenda will include some consideration of Upper Newport Bay.

I am enclosing three copies of a proposal which I prepared earlier and which is jointly signed by myself, Professor Boughey, and Professor Whittaker. It summarizes some of the arguments against the proposed development of Upper Newport Bay and proposes that a portion of the upper bay be designated as a wildlife reserve area. I believe the arguments against dredging and developing the bay are still the same and my view of the proper use of this area has not changed. Upper Newport Bay is an invaluable resource and should be used in such a way as to benefit all of the people of the area, not merely the immediate residents.

I would be grateful if this letter and the enclosed proposal could be made part of the record. I would also like to request an opportunity to testify before the board at its hearing. Can you please notify me of the scheduling since I cannot arrange to attend on both days? Thank you.

Grover Stephens
Grover C. Stephens
Professor and Chairman

GCS:hr

Enclosure

# A PROPOSAL FOR THE DEVELOPMENT OF UPPER NEWPORT BAY

The proposal which we outline below is offered as an alternative to the Land Exchange Plan prepared by the Orange County Harbor District, dated March 31, 1964. A brief account of the history of that plan is relevant.

The plan is strongly supported by the Irvine Company and by the Orange County Harbor District and has been accepted by the City of Newport Beach. It is based on an exchange of land which involves State-granted tidelands and hence comes under the scrutiny of the California State Lands Commission. The plan and the land exchange proposal were acted upon by that Commission in August, 1966, and were not approved as a result of public hearings and on the advice of the Commission's staff. The following reasons were offered in the staff report:

> "1. It cannot be established clearly that all the lands which are to be exchanged are no longer useful for navigation, commerce, and fishing.
>
> 2. Realignment and relocation of the public waterways as proposed would diminish the greater public use which could be developed otherwise.
>
> 3. Removing the burden of easement and enlarging the Irvine lands into usable private areas would be a purely local benefit which would convert public waterways into a captive waterway primarily for the use of the private residential boat owners who would occupy the created area and dominate the bay.
>
> 4. The project would create commercial areas completely privately controlled which could add to the preponderant private domination of the bay."

The Commission authorized an additional report by the firm of Livingston and Blayney, City and Regional Planners. This report, submitted in November, 1966, offers criteria for judging a development plan. While they were not charged to make a firm recommendation, Livingston and Blayney repeatedly indicate their support for a view that a better plan in the sense of a development which is more in the public interest can be framed. Specifically, they note shortcomings in the matter of public access in the present plan and note the lack of protection of the beauty of the environment.

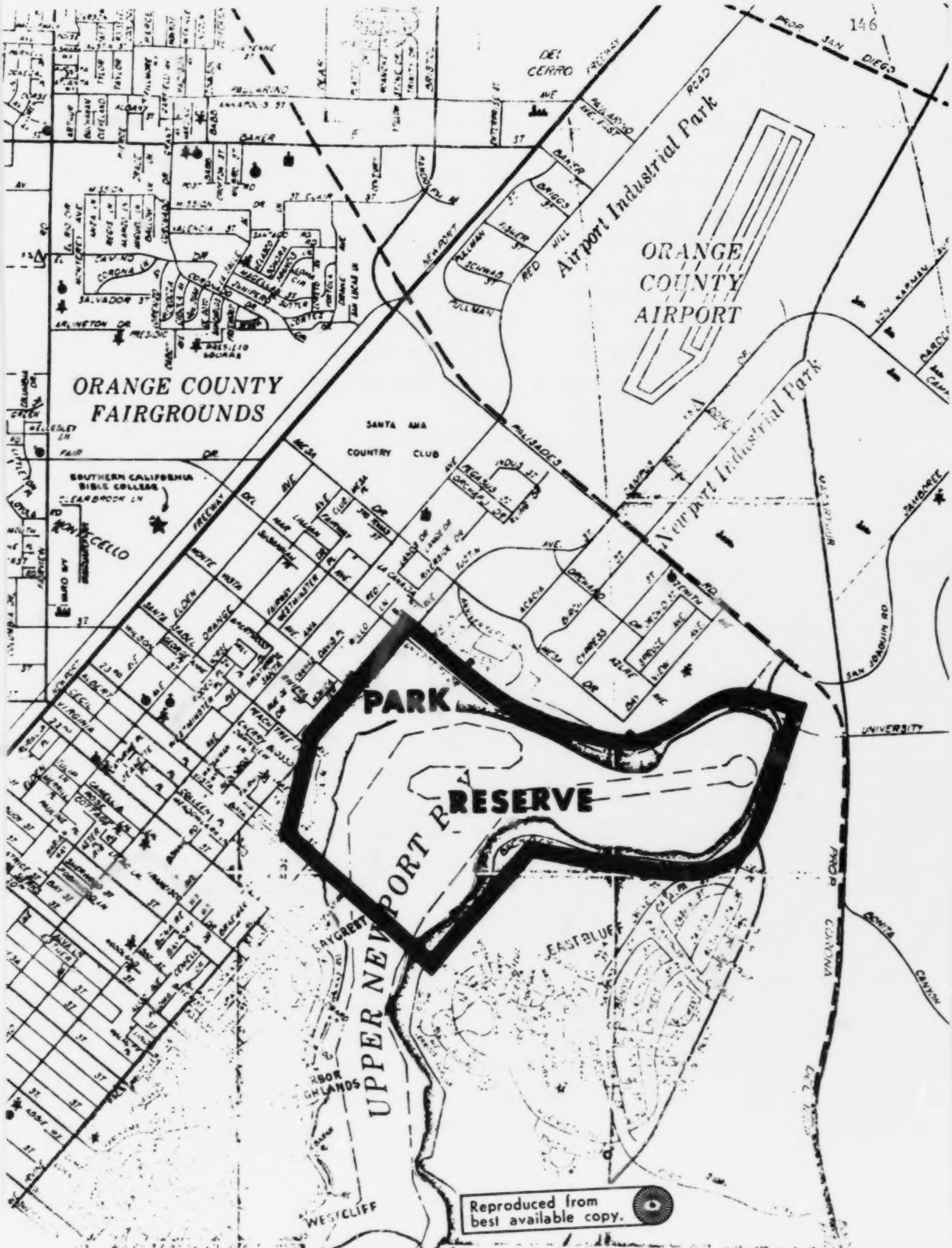
Despite the consistent negative reaction of the reviewing bodies which have examined the land exchange and development plan with care, they may well be offered again to the State Lands Commission without significant modification. One reason for this is the lack of an effective independent group to offer and support an alternative.

Our proposal is drawn without any resources other than our time and consequently cannot be elaborate and fully documented. We make this proposal as residents of the area, concerned with the quality of our environment. We also wish to express our concern for the protection of the interests of the citizens of our State since the upper bay is not a local resource but unique in southern California. We also advance this proposal as professional biologists cognizant of the interrelations of the plants and animals of this area. Finally, we advance this plan as educators on behalf of our students to come.

The essence of our proposal is simple and can be stated briefly and directly. We propose that the entire upper portion of Upper Newport Bay north of the present water ski area be designated as a public park and wildlife refuge area. Residential construction and commercial development should be restricted to the bluffs which overlook the bay around its entire perimeter. We also propose a park developed for picnicking and light recreation use on the bluff overlooking the bay from the northwest. This would stretch from 23rd Street to Del Mar Avenue (University Drive) and extend from Tustin Avenue east to the top of the bluffs. The present salt plant which leases the extreme head of the bay should cease operations, and the area be permitted to return to its natural salt marsh character. The dark line on the attached map marks the boundary of the refuge area and roughly outlines the park on the bluffs. Back Bay Drive and University Drive would be routed on top of the bluffs.

A great many reasons can be offered for giving this proposal the most serious consideration. We outline a few of these in the following paragraphs.

Areas of marine marshland are extremely rare in southern California. It is fair to say that Upper Newport Bay represents a unique resource in this sense. There is no comparably extensive natural area which might be preserved south of Morro Bay in the State. Ecologically it is closely connected with the San Joaquin Marsh which lies to the north and the east of the head of the bay and which seasonally drains into it. The latter is a fresh water marsh. The two areas together form a unit of unparalleled richness in the whole of southern California. Well over a hundred species of birds visit the feeding grounds of the shallow upper bay area we are proposing to preserve. It also serves as an important breeding ground for inshore fishes (for example, mullet and spotted croaker) and



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provides shelter for numerous lower animals which makes it attractive to naturalists as well as the birds which depend on it.

It is impossible to overemphasize how rare such areas are, particularly in this region. 67% of such estuarine areas in the State of California have been destroyed already. The situation is far worse in southern California where the arid climate makes the true estuarine environment a rarity. Formerly six substantial marshland regions existed in southern California. At present upper Newport Bay is the only undeveloped bay region remaining between Morro Bay and Ensenada, a span of about 400 miles.

Preservation of the beauty and richness of our environment is perhaps the basic argument for our proposal of a reserve area. We contemplate foot trails which would provide access for those who wish to observe the very rich wildlife of the bay. We also want to emphasize the educational value of having a salt marsh area available for observation by students at all levels in our educational system. Unless we act to preserve them, tidal mud flats and salt marsh habitats will be extinct in southern California, and wholly unavailable for student observation and research. There is no substitute for the possibility of direct confrontation of the student with a variety of natural habitats and their living organisms. We believe future generations will regard as an act of wisdom the preservation of this area with its unique natural attractions and teaching and research value as open space within the intensive urban development which is to come.

We should also note that the preservation of the natural character of the marsh in the upper bay has direct advantages for the development of the rest of the area. The bulk of the development in the plan rejected by the State Lands Commission in 1966 involves dredging a channel to an average depth of about ten feet and lining the margins with retaining bulkheads. Thus the rise or fall of the tide would not expose open areas for the oxidation of wastes which inevitably would drift to the head of the bay under the influence of the prevailing onshore winds. Our proposal would not merely preserve the variety of animals and plants but would provide a natural exposed area at low tide which would greatly assist in the maintenance of an attractive upper bay as a whole.

We may briefly contrast our proposal with the current development favored by the Irvine Company. They propose an area of high density housing along the western and the northeastern shore of the upper end bay. The extreme head of the bay is to be devoted to a "marine stadium", a bathing beach, and a rowing course. We cannot forebear pointing out that the bathing beach and the rowing channel are essentially the surge channel of the flood control system somewhat widened. With onshore winds and a position at the extreme head of the bay, it is most unlikely that any program of trash collection could keep the water along this channel attractive as a swimming beach. As for the "marine stadium", it has been noted by power boat enthusiasts that it is too small to accomodate more than a comparatively trivial number of boats for such activities as water skiing. We may also note the apparent lack of concern with the problems that will surely result from putting a noisy power boat area immediately adjacent to a high density residential development.

Finally, we should note the fact that the area we suggest as a reserve and the location of our park overlooking the bay lie directly on the takeoff flyway for Orange County's Airport. It seems much more realistic to devote such an area to public use of a light intensity which the land can support ecologically than to try to develop it as high density housing down to the water's margin.

In sum, our proposal increases public access in a meaningful way to the unique resources of the Upper Bay. It preserves and restores a natural area of a kind which is vanishing rapidly in the State. It takes account of the realities of other developments in the area and their interrelation. We believe that it will also aid residential and commercial interests in the long run by contributing to a more attractive and effective overall development, thereby increasing the desirability of housing and business activity in the whole region.

Arthur S. Boughey, Professor and Chairman
Department of Population and Environmental Biology
University of California, Irvine

Grover C. Stephens

Grover C. Stephens, Professor and Chairman
Department of Organismic Biology
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Department of Population and Environmental Biology
University of California, Irvine

620 Narcissus Avenue
Corona del Mar, California 92625

February 16, 1969

Mr. Irving M. Terzich
Pacific Southwest Region
Federal Water Pollution Control Administration
716 Market Street
San Francisco, California 94102

Dear Mr. Irving:

I am enclosing three copies of a letter drafted under my chairmanship by representatives of conservation organizations and private persons of Orange County relative to the proposed development of Newport Bay.for forwarding to Mr. Livermore of the California State Resources Agency.

As comments made in the letter have relevance to the hearing on water pollution being held in Los Angeles on February 25, 1969, on water quality management for estuaries, I request that the letter be entered into the record of this hearing.

Thanking you, I remain

Respectfully yours,

John W. Johnson

Chairman, Orange County
Advisory Committee for
Natural Lands Conservation

620 Narcissus Avenue
Corona del Mar,
California

February 20, 1968

Mr. Norman B. Livermore, Jr., Administrator
California State Resources Agencies
Room 1311, Resources Building
1416 Ninth Street
Sacramento, California

Dear Mr. Livermore:

As a result of the action of the California State Lands Commission on September 25, 1967, freedom was granted to the County of Orange to proceed in cooperation with the Irvine Company in the development of the Upper Newport Bay, California.

It is the belief of the persons and organizations whose signatures are attached below that, for the following reasons, the proposed Orange County-Irvine Company plan for the Newport Bay development is not in the best interest of the majority of the people of the State of California and of the preservation of the resources of the State of California:

1. Upper Newport Bay in its natural state has served as a wild lands recreation area for more than a century. It is used yearly by thousands of people for fishing, hiking, riding, observation and study of wild life, painting, picnicking and enjoyment of the natural scene. The need for the preservation of the Bay in its natural state as open space and for its beautiful natural setting and landscape to which people may travel for rest and recreation becomes even greater with continued increase of the urban population of Southern California.

2. Upper Newport Bay is a regional recreation resource serving not only Orange County, but all of the great metropolitan area of the southern part of the State - comprising parts of Ventura, Los Angeles, San Bernardino, Riverside, Imperial and San Diego Counties, as well as Orange County.

3. The proposed land exchange projected by the Orange County Department of Harbors, Beaches and Parks, with the approval of the Orange County Supervisors, will deprive California citizens of free public access to the Bay along the present three-mile east shore road, transferring the shore to the private ownership of the Irvine Company for exploitation for a small number of leaseholders who

will hold frontage along the Bay. A most urgent need for the people of California today is greatly increased recreation areas close to urban centers. Yet everywhere in the State all levels of government are permitting private exploitation of choice recreation lands to reduce continually the opportunities of our great population for free healthful outdoor recreation in beautiful undisturbed natural surroundings.

4 Upper Newport Bay is used for education and research in science and conservation by thousands of persons yearly in Southern California elementary schools, secondary schools, colleges and universities, with a total yearly investment of millions of dollars in the educational process.

5. Upper Newport Bay is an outstanding example of coastal salt marsh and estuarine environment supporting a flora of salt marsh and marine plants and a rich fauna of birds, small mammals, marine fishes and mollusks. It is, perhaps, the last available extensive area of this environment remaining south of San Francisco Bay. Destruction by dredging will deprive the southern part of the State of a unique natural resource.

6. The Upper Newport Bay serves as one of the few remaining major resting and feeding areas for the migratory shore birds, marsh birds, and waterfowl of the Pacific flyway along the one thousand mile coast of California. Destruction of the natural environment of the Bay by dredging brings measurably nearer the threat of extinction to these wildlife resources, not only of the State and the Nation but of the Western Hemisphere. The importance of these resources to the welfare of the Nation and the Hemisphere has been embodied in international treaties for their conservation between the United States, Canada and Mexico.

7. Upper Newport Bay should be conserved as a natural salt marsh in keeping with the impending intention of Congress to establish safeguards for the remaining tidal estuaries and marsh lands of the United States. The Tidelands and Wet Lands Bill, HR 25, has been approved by a committee of the House of Representatives, for submission to both Houses of Congress and establishes the preservation of the tidelands as important to the people of the United States. Upper Newport Bay, as one of the diminishing number of tidal marshes still in existence along the Pacific coast of America, must be preserved as a tideland important to the Nation. The Congressional Committee on Merchant Marine and Fisheries in Report No. 989, November 28, 1967, emphasises that California has lost four times as much of its estuarine habitat as any other state in the United States, 255,888 acres, or 67 per cent of its total tidelands having been destroyed.

8. Upper Newport Bay serves as an outlet for the drainage from the residential and industrial area on the bluffs surrounding the Bay and adjacent to the University of California at Irvine, and from the agricultural and hill lands of the Irvine Valley beyond. Heavy pollution may be expected with the ultimate urban development of the surrounding lands, making the Bay waters unfit for swimming and water sports for which, ostensibly, the Bay is to be dredged. Such pollution will be aggravated by poor tidal flushing due to the remoteness of the harbor entrance more than four miles from the upper end of the Bay.

For these urgent reasons we urge that the proposed development of the Upper Newport Bay be opposed by California State Resources Agencies in favor of preservation of the Bay as a freely accessible regional natural resource open to such public uses as may be compatible with its drainage function and the conservation of this significant segment of the remaining salt marsh and estuarine habitat of California.

Respectfully,

Corinne Babb
Orange County Chapter
Sierra Club

Barbara Gittins
Orange Coast College

Bayard H. Brattstran
Department of Diology
California State College Fullerton

Carl L. Hubbs
University of California San Diego
Scripps Institution of Oceanography

Grover C. Stephens
Division of Biological Science
University of California at Irvine

Kenneth W. Tanksley
Westminster High School
Sea and Sage Chapter
National Audubon Society

Charles Greening
Sea and Sage Chapter
National Audubon Society

Paul W. Colburn
Natural Conservancy

Fern Zimmerman
Sea and Sage Chapter
National Audubon Society

John W. Johnson
Orange County Advisory Committee for
Natural Lands Conservation

R. Ward Renshaw
Biology Department
California State College at Long Beach

Stuart L. Warter
Department of Biology
California State College at Long Beach
Cooper Ornithological Society

THE NATURE CONSERVANCY

**Southern California Chapter**

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WESTERN REGIONAL OFFICE
Director:
Huey D. Johnson
215 Market Street
San Francisco 94105

February 28, 1968

Federal Water Pollution Control Administration
United States Department of the Interior
Pacific Southwest Region
760 Market Street
San Francisco, CA 84102

Sirs,

The Southern California Chapter of The Nature Conservancy strongly urges you to back all attempts to furthur all resistance to eliminating our wetlands. As is true of all natural communitites, when they are destroyed by man, they are gone for good. The biota is unalterably changed, and, witness pollution, not for the good. One of the best ways to prevent pollution of an area is to leave it alone. That includes the surrounding areas which may feed into it.

Though we have lost the large percentage of our coastal wetlands to "development," there are some few areas left. We urge that all governmental agencies resist the efforts of private development to make them into marinas, private playgrounds for the well-to-do.

The people of California are showing concern regarding their wildlife, as demonstrated by the public indignation on what was thought to be callous disregard for the birds caught in the recent slick. The head of Union Oil Company had to print large advertisements "explaining" his untoward remarks. Maybe, some wonderful day, the birds in the lagoons that are left will be such wonderful treasures, that our grandchildredn will wonder why, WHY we didn't provide more of their natural habitat. We will have lots to answer for.

Sincerely,

Elna Bakker

Elna Bakker, Chairman

March 11, 1969

Mr. Irving M. Terzich
Pacific Southwest Region
Federal Water Pollution Control Administration
760 Market Street
San Francisco, California 94102

Dear Sir:

Enclosed find three copies of statement regarding Water Quality Management for Estuaries which may give a slightly different view of the situation in areas where I have had close personal experience over a long period of time.

I hope this will be of some use towards developing a larger overall program for the benefit of the general public. It will be a difficult problem to satisfy even a small portion of the more vocal groups and yet attempt to fulfill the larger aims.

If the states have failed to protect and preserve at least representative segments of estuaries, it seems obvious that special preserves or National Parks must be formed to maintain these natural areas for posterity, and undoubtedly at a federal level.

Sincerely yours,

Milton W Zim

Milton W. Zim

MWZ:mm
Enc.

## STATEMENT OF MILTON W. ZIM

To the public meeting on Water Quality Management for Estuaries sponsored jointly by the California State Water Resources Control Board and the Federal Water Pollution Control Administration.

### QUALIFICATIONS

I am a native Californian and have spent most of my life at coastal cities from San Diego, my birthplace, to Santa Barbara. I have been employed by the Department of Water and Power of the City of Los Angeles for 29 years. I am a research chemist and biologist in the Sanitary Engineering Division. In my work I have been concerned with water quality problems in the Los Angeles harbor since 1946. For nearly twenty years I have conducted monthly harbor pollution surveys in conjunction with the Port of Los Angeles. As the Department of Water and Power developed other power generation sites on the ocean, my duties expanded to include water quality and thermal studies, marine fouling growth control studies, and preparation of data to meet the requirements of the State Water Quality Control Board.

My foremost hobby is salt water fishing; so the Southern California coast and its marine life is familiar to me. Most of my life has been spent on the coast. My wife and I are amateur conchologists and have collected specimens from most of the bays and estuaries in the state.

Most of my education was local, but my B.S. and M.A. are from Columbia University majoring in Chemistry and Biological Science.

I make the following statement as a concerned individual citizen to clarify the effects of the operations of two power plants in estuarine locations, and make some general observations regarding pollution and the estuarine environment.

### STATEMENT

The Department of Water and Power operates two steam electrical generating plants in areas that are considered estuaries; according to Federal Water Pollution Control Administration definition, namely, the Haynes Steam Plant near Seal Beach and the Harbor Steam Plant at Wilmington in the Los Angeles inner harbor.

The Haynes Steam Plant abstracts about one billion gallons per day of cooling water from the Long Beach Marina and routes it under the San Gabriel River through tunnels and through an open channel to the plant 1.8 miles inland. The cooling water passes through the condensers and returns to the ocean by means of discharges into the San Gabriel River tidal prism.

Over the past few years based on monthly samplings, the average temperature in the San Gabriel River was 14.6°F above the temperature of the incoming marina water. The highest increase was 19.8°F and the lowest 9.0°F. These variations are due to the rate of power generation. The incoming water varied from a low of 55.4°F to a high of 74.3°F, and the highest temperature noted in the tidal prism was 86.0°F and the lowest 70.5°F.

The Harbor Steam Plant takes about 400 million gallons of cooling water from Slip 5 daily and discharges into the West Basin. The median surface water temperature near the Slip 5 intake was 63.9°F and at the West Basin which receives the discharge, 67.1°F, an increase of 3.2°F. The water at 20' depth had a median temperature of 61.8°F at the intake area and 62.4°F at the discharge area. The range of surface temperatures was 57.1°F to 72.2°F at the intake area and 57.1°F to 75.2°F at the discharge area. The 20' depth temperatures ranged from 57.0°F to 69.5°F at the intake area to 57.5°F to 69.2°F at the discharge area. The above data are from the last 3 years' published record of monthly samplings.

The Haynes Steam Plant annually produces about 8.5 billion KW hours of electrical energy valued at over 100 million dollars. This plant represents a public investment of nearly 170 million dollars.

Harbor Steam Plant produces over two billion KW hours of electrical energy each year valued at over $25,000,000. It represents a public investment of nearly 60 million dollars.

In Southern California, where fresh water is limited in supply, the use of marine water for cooling purposes in steam generating plants conserves a considerable quantity of fresh water. The combined savings resulting from the use of marine cooling water at these two plants would equal the water supply for a population of 250,000 people.

The general effects of the discharges from these two plants upon the environment are mainly beneficial. It is true that a slight lowering of dissolved oxygen results from the temperature change in the condensers, but this averages about 0.1 parts per million, and poses no real problem. The large flow of clear marine water through the San Gabriel River tidal prism has completely eliminated former problems of sulfide production resulting from waste waters discharged into the river. At Harbor Steam Plant the improved circulation resulting from plant operation has helped in minimizing low dissolved oxygen conditions in the West Basin by virtue of bringing to the surface better oxygenated water from deeper strata in Slip 5.

The San Gabriel River tidal prism is a fenced storm drain channel, accessible only at the bridges and the ocean jetties. A prolific bottom biota develops, but it is scoured during heavy storms, and dredging by the Army Corps of Engineers has made a drastic environmental change. The combined plant effluents of the Haynes Steam Plant and the Southern California Edison Company provide a different ecological environment that favors species adapted to the warmer conditions. Fish are present in the tidal prism throughout the year excepting perhaps during heavy storm flows. During the colder months many species of fishes that normally migrate south remain in these warmed waters and provide sport for fishermen utilizing the bridges and jetties. Surfers and bathers take advantage of the warmer waters to extend their activities into the winter months.

Contrary to some testimony, the water quality of the Los Angeles Inner Harbor was gradually improving for nearly twenty years. The last three and one half years have seen a decline in water quality associated with the sour water oxidation process developed by the oil refineries. The resulting difficult thiosulfate effluent is now routed to the County Sanitation District for offshore disposal by one refinery, and the others are making arrangements for this or other means of disposal. This should produce a marked upgrading of water quality in the L.A. Harbor. Since the marine life present in the Inner Harbor is not accessible for harvesting and public use due to the commercial nature of the docks and port regulations, no effects of steam plant operations are observable other than the slight increase in temperature in West Basin and improved dissolved oxygen in that area.

One last point that seems pertinent relates to the normal supply of nutrients brought down by rivers to their estuaries. These enhance productivity by starting the food chain that contributes to all the biota in the habitat. Since most of our Southern California estuaries have no dry weather flow, the nutrient values derived from various wastes go into the food chain. In the Los Angeles - Long Beach harbor complex, these wastes contribute heavily to an important year round anchovy live bait fishery. Complete elimination of wastes and the nutrients they supply from this estuarine environment will result in cleaner waters and an unproductive habitat. This is borne out by the report of the poor biological habitat now existing in Mission Bay in the San Diego area, as compared with the abundant biota existing when the San Diego River fed through this estuary system. A similar effect will be noted resulting from the cleanup of San Diego Bay.

This points out an important and often overlooked fact - that an excess in either direction can be biologically detrimental. We cannot restore a habitat by eliminating its food supply, neither can we create greater abundance by excessive pollution. Some sort of balance must be maintained.

MW2

**DEPARTMENT OF THE ARMY**
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
P. O. BOX 2711
LOS ANGELES, CALIFORNIA 90053

IN REPLY REFER TO
SPLED-EP

7 March 1969

Mr. Irving M. Terzich
Pacific Southwest Region
Federal Water Pollution Control Administration
760 Market Street
San Francisco, California 94102

Dear Mr. Terzich:

This is in response to your notice of the public meeting on water quality management for estuaries held in Los Angeles 25 and 26 February 1969. A member of my staff attended the meeting and indicated my desire to submit this statement.

The Los Angeles District has substantially completed six Federal navigation projects in sites with estuarine characteristics. These projects are located at San Diego Harbor, Mission Bay Harbor, Newport Bay Harbor, Los Angeles-Long Beach Harbors, Marina del Rey, and Morro Bay Harbor. Federal navigation projects at San Diego Harbor (expansion of existing project), Port Hueneme Harbor, and Ventura Marina have been authorized, but construction has not been started. Six additional Federal navigation projects are located in non-estuarine sites. These projects are at Oceanside Harbor, Redondo King Harbor, Dana Point Harbor (under construction), Channel Islands Harbor, Santa Barbara Harbor and Port San Luis.

Various investigations to determine the need for navigation improvements have been authorized, including investigations to determine the need for expansion of existing harbors. Estuarine environments are involved in the following investigations and studies: San Diego Harbor Second Entrance, Sunset Harbor, Upper Newport Bay, Los Angeles-Long Beach Harbors and Morro Bay.

Project output, in terms of satisfaction of need, is considered in terms of tonnage of waterborne commerce for commercial navigation projects, and numbers of boats berthed for recreational navigation projects. Project output in terms of recreational use of trailered and launched boats is considered in terms of annual user-days, or in terms of numbers of equivalent berthed boats.

The completed commercial navigation projects at San Diego Harbor and Los Angeles-Long Beach Harbors enabled these harbors to handle over 34 million tons of waterborne commerce in 1965 and an estimated 36 million tons in 1968. Tangible net benefits used in project formulation studies for commercial navigation improvements are based, under Corps criteria, primarily on transportation savings. A more meaningful monetary evaluation of the regional importance of commercial harbors might be stated in terms of monetary benefit to the community due to the waterborne commerce passing through the ports. It is estimated that the 1965 tonnage represented a benefit to the community of over $263 million.

The number of small craft berthed in the Los Angeles District totalled about 21,500 in 1968. About 14,500 of these boats were berthed in Federal project harbors constructed in estuarine environments, including the commercial harbor projects for which recreational boating was not considered a project purpose. The criteria used by the Corps for evaluating tangible net benefits from recreational berthed boats are based on a formula arriving at the net return from equivalent for-hire commercial boats. We feel that a more meaningful evaluation of the recreational value of small-craft berthing, for the purposes of your study, would be an evaluation of recreational output in annual recreation days. The annual recreation days from the total number of small craft berthed in the Los Angeles District in 1968 are estimated at 5,200,000; approximately 3,500,000 annual recreation days are attributable to Federal project harbors in estuarine sites.

Annual recreation days deriving from trailered and launched boat use of coastal waters in the Los Angeles District are estimated at 4,700,000; it is estimated that about 3,000,000 annual recreation days are attributable to Federal project harbors in estuarine sites.

The Corps is fully aware of the need for considering a broad range of alternatives during planning phases of assigned studies. The need for preserving or enhancing the natural environment is one of these alternatives. Germane to this is the need for realistic evaluation of the benefits and detriments likely to arise from development of estuarine environments.

I appreciate the opportunity to submit this statement, and trust that it is responsive to your needs. Should you wish further information concerning any projects or studies in the Los Angeles District, please let me know.

Sincerely yours,

Norman E. Pehrson

NORMAN E. PEHRSON
Colonel, CE
District Engineer

cc: SPDPD
SPNDE

Mr. Irving M. Terzich
Pacific Southwest Region
Federal Water Pollution
Control Administration
760 Market St.
San Francisco, Calif. 94102

Dear Mr. Terzich,

Please include the enclosed study, "Vanishing Lagoon Marsh Habitat of Southern California", in the record of testimony for the Water Quality Management for Estuaries hearings, as per our telephone conversation.

The study is drawn from my personal experience of over 1,000 hours of wildlife observation and photography in the areas concerned, and I hope it will prove pertinent to your report.

May I request two copies of the resulting report when it is completed?

With thanks,

Colin Cantwell
225½ Carroll Canal
Venice, Calif. 90291

# Vanishing Lagoon Marsh Habitat of Southern California

A survey of present uses with
suggestions for future development.

by Colin Cantwell

For the Clairmont Conservation Committee

March 1969

JAN SCHERFIG
2753 MENDOZA DRIVE
COSTA MESA, CALIFORNIA 92626
TELEPHONE (714) 540-4270

March 13, 1969

Federal Water Pollution Control Administration
760 Market Street
San Francisco, California 94102

WATER QUALITY MANAGEMENT FOR ESTUARIES

In reply to your request for statements regarding water quality management in estuaries, I want to make the following views regarding the importance of estuaries and the roles of government known:

One of the most disturbing factors relating to the management of estuarine water quality is the fact that development of estuaries are presently being considered or implemented without the benefit of an overall master plan for the individual estuary.

> An example of the lack of a master plan is found in the proposed development of Upper Newport Bay, California. A private company and governmental agencies have agreed to an exchange of land, including public owned tidelands, and have agreed to a comprehensive dredging program without the existence of a master plan. Thus there is no guarantee that the development following the land exchange and dredging will be the best possible, nor is there a guarantee that a satisfactory water quality can be maintained at reasonable cost.

It is my belief that no haphazard development of the nation's remaining undisturbed estuaries should be allowed before a comprehensive master plan for the estuary has been prepared, and the possible alternatives discussed in public hearings. The master plans should require approval by a State Agency, perhaps in accordance with some minimum guidelines established by the Federal Government.

As a minimum, such master plan should include an evaluation of the biological significance of the estuary, predicted water quality based upon simulation studies for alternative developments, cost-benefit analyses for the different possible landuses (including the value added to adjacent areas if an estuary remains as open space), and investigation of the need for recreational areas in the region where the estuary is located.

Jan Scherfig

*Morro Coast Audubon Society*
*P.O. Box 160, Morro Bay, California 93442*

February 17, 1969

Federal Water Pollution Control Administration,
750 Market Street,
San Francisco, California. 94102.

Gentlemen:

The Morro Coast Audubon Society is happy to have an opportunity to discuss some of the urgent problems that must be solved if the Morro Bay estuary is to survive as an ecological entity. Many of our officers and members have been active participants in the accumulation of data for the published references cited in the accompanying statement. We stand ready to cooperate at any time with official agencies interested in the protection of the estuary.

While this statement confines itself to our local estuary, we also wish to express our interest in, and cooperation with all efforts directed to saving the remaining estuaries of the nation.

Respectfully,

Hubert A. Patchett
Hubert A. Patchett,
President,
Morro Coast Audubon Society

Inclosure:Statement

*Morro Coast Audubon Society*
*P.O. Box 160, Morro Bay, California 93442*

STATEMENT FOR THE RECORD OF JOINT HEARINGS BY THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD AND THE FEDERAL WATER POLLUTION CONTROL ADMINISTRATION REGARDING WATER QUALITY MANAGEMENT FOR ESTUARIES.

The values and beneficial uses of the Morro Bay Estuary have been thoroughly studied and completely documented. The following list of official publications by agencies of the State of California are submitted as sources of reliable data relevant to the purposes of these hearings:

1. California Fish and Wildlife Plan- Five Volumes - 1966
2. California Waterways Protection - One Volume - - - 1966
3. Report on Natural Resources of Morro Bay and Proposal for Comprehensive Area Plan - - 1966
4. Studies of Morro Bay and Morro Bay State Park & Vicinity Plants and Animals - by V. Barnes, Ph.D. Prepared for the California Department of Parks & Recreation - - - - - 1964-1965

What emerges from these studies is a picture of a unique and beautiful estuarial resource, easily accessible to the large metropolitan populations of Los Angeles and San Francisco. It is still comparatively free of pollution because development and population growth are just beginning. Its location, small size, lack of effective, unified control and planning, make it dangerously susceptible to quick destruction and pollution.

Of urgent and immediate concern to us are the following factors that relate to possible detrimental environmental changes:

1. Private ownership of lands bordering on the estuary and planned for commercial development.
2. Control of drainage into bay from surrounding developments and communities.
3. Lack of any existing emergency protection against oil spills inside the bay or in adjacent tanker anchorages.
4. Litter and waste from pleasure and commercial craft in bay.
5. Excessive fill or dredging by public and private developers.
6. Silting during floods (as in January 1969) destroying salt marsh and tideland habitat, endangering ecology and threatening oyster culture industry.
7. Pesticide residues carried into Los Osos and Chorro Creeks from agricultural lands and draining into estuarial environment.

Morro Coast Audubon Society
P.O. Box 160, Morro Bay, California 93442

### STATEMENT FOR THE RECORD OF JOINT HEARINGS BY THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD AND THE FEDERAL WATER POLLUTION CONTROL ADMINISTRATION REGARDING WATER QUALITY MANAGEMENT FOR ESTUARIES.

It is our considered judgment that unless measures are taken to change the present course of events, the next decade will see the disappearance and destruction of another estuary important to the survival of our vanishing resources of wildlife and natural beauty.

We therefore recommend:

1. That a Morro Bay Regional Authority be organized, funded and given jurisdiction for the planning and use of all land and water resources of the bay, with authority to control pollution from public or private sources.

2. That undeveloped lands now in private ownership and bordering on the estuary be purchased by the State or Federal Government for use as parks or sanctuaries for wildlife.

3. That oil companies, or utilities using oil in or near the harbor, be required to keep on hand for emergency use sufficient lengths of plastic or log booms to confine surface spills or prevent such spills from entering the harbor.

Respectfully submitted for the Morro Coast Audubon Society by unanimous vote of the Board of Directors.

Hubert A. Patchett

Hubert A. Patchett,
President,
Morro Coast Audubon Society

1007 Nottingham Road
Newport Beach, California, 92660
February 11, 1969

Mr. John C. Merrill, Jr.
Federal Water Pollution Control Administration
Department of the Interior
760 Market Street
San Francisco, Californa, 92660

Subject: Public hearing, February 25 and 26. UPPER NEWPORT BAY.

Dear Mr. Merrill:

Mrs. Howard Babb has told me of the hearing which you have scheduled for Los Angeles.

In the absence of my husband, who is on a business trip in the East, I have prepared this enclosed report. I am submitting it in his name as chairman of the group with which we have worked since August, 1963.

It is very doubtful that my husband will be able to be present at the hearing to deliver this testimony orally, but I do hope that it will be possible for you to see that it is read into the record.

Some of this was included in the ten-page report which we submitted to Hon. Alan Sieroty's Assembly Sub-Committee on Conservation and Beaches, at a public hearing in Newport Beach last December. Although the presentation was considered so important that it was re-scheduled for the morning session in order that several men from various state offices could hear it, no mention of the testimony, not even my husband's name, nor our organization, was made in any Orange County or Los Angeles newspaper. Subsequently, this material was again deleted from any newspaper coverage when my husband presented it to the meeting of the Harbor Area Citizens' Council and the Harbor Goals study group. There is no question that there is an agreement on the part of the press to suppress this information. Mr. Robinson was assured that one local paper would print our statement if he would send it condensed to two pages. It was impossible to abstract the ten-page report to that small amount of lineage, but permission was given to the newspaper to edit the statement. It was never published, nor were the letters published which objected to my husband's testimony's being omitted from coverage. For these reasons, this enclosed presentation is likely to differ markedly from all the others which you will receive on the Upper Bay. We feel that this information simply must be made known, and we are powerless to do it.

It is a grim war we fight, and we will die hard; because we will always know that lack of money, not lack of effort or ability, defeated us.

Respectfully,

Frances Robinson

Mrs. J. Frank Robinson (Frances)
Member, Orange County Tidelands Association

RECEIVED
FEB 14 1969 P.M.
ROUTE TO: (INITIALS)
FILE COPY

1007 Nottingham Road
Newport Beach, California, 92660
February 11, 1969

Mr. John C. Merrill, Jr.
Federal Water Pollution Control Administration
Department of the Interior
760 Market Street
San Francisco, California, 94102

Subject: Testimony for public hearing February 25 and 26 - UPPER NEWPORT BAY, ORANGE COUNTY, CALIFORNIA.

Dear Mr. Merrill:

The fiasco of the Upper Newport Bay is so monstrous that a description of what has transpired here is almost impossible without publication of a book - a must-do. However, we shall attempt to confine to a few pages our report of some of the maneuvering that has taken place with regard to the bay, in the hope that such a tragedy may not take place again.

The Orange County Board of Supervisors became the trustee of the tidelands in Upper Newport Bay in 1919, having received this authority from the State. The jurisdiction of the County extends up to the high-tide mark in the bay. According to our State Constitution, the citizens are to have access to these tidelands for purposes of fishing, navigation, and commerce.

The uplands around the bay, mainly bluffs, are owned by the Irvine Corporation. Through a Court action, the Irvine Corporation also obtained title to a small amount of the tidelands, part of which have become the expensive waterfront development, Dover Shores.

The northernmost part of the Upper Bay above what is called "The Narrows" is the tideland patent area where the Irvine Company and the County both have easements for fishing, navigation, and commerce. The County may at any time dredge, or otherwise develop, this area for such purposes.

The citizens unfortunately have lost the use of most of this patent area because of a dike which was constructed across it by the Irvine Company. We have inquired of oldtimers in Newport Beach as to why they didn't protest the dike which was erected many years ago. These people have assured us that they, indeed, did protest; but the dike was built despite their objections. We understand this dike is illegal.

Physically, what does the dike do? It has converted the area north of if - and to some degree, to the south of it - into a mudhole. Two flood control channels drain into this section bringing debris and insecticides from agricultural areas. During a period of flooding, such as occurred last month, waters rise so high they pour over the dike and tear out huge sections of it. This allows temporary runoff; but the rest of the time, with all tidal action eliminated because of the dike, the wastes from the flood control channels just accumulate. Obviously, in this situation, the use by the citizens of this patent area for fishing, navigation, or commerce, is an impossibility.

In 1957, in order to make possible the "development" of the Upper Bay, Enabling legislation was passed to permit a trade of the County's tidelands for some of the Irvine uplands around the bay. The conditions imposed by the Enabling legislation were: 1, the lands to be received by the County must be of greater value; 2, the tidelands must be filled to at least 1" above mean high tide to render them unuseable for fishing, navigation, and commerce; 3, the trade must be approved by the State Lands Commission.

The Irvine Company, in May, 1963, made its proposal for the trade. Significantly, it was the Irvine Company, not the County or its Harbor District, which took the initiative. The Board of Supervisors rubber-stamped the Irvine plan and offered no alternative of its own, although it was clear that an alternative was necessary to keep the tidelands in the public domain.

After a three-year study by its staff, the State Lands Commission, in

1966, declined the trade on the grounds that it was not sufficiently in the public interest. In declining the trade, the Commissioners (Alan Cranston, Hale Champion, and Glenn Anderson) instructed the Orange County Board of Supervisors to go back for more negotiations with the Irvine Company. Both parties to the trade refused to make any changes in the proposal.

In 1967, as a result of the election, the membership of the three-man State Lands Commission was changed in its entirety. One of the new members had as his Orange County campaign manager a man who is on the Board of Directors of the Irvine Corporation. When these men had been in office less than a year, they gave their approval to the tidelands trade. Nothing had changed insofar as the proposal was concerned. The findings of the staff were the same. The State Lands Commission of 1967 merely said that the development of the bay had been postponed long enough.

Several inadequacies in the State Lands Commission are evidenced relative to this trade:

1) They put a price on an irreplaceable commodity, our tidelands, which are here by an act of creation, and which cannot be re-constructed by man at any price.

2) They decided that the County received lands "of greater value" - but one of their staff members informed us that they had no charter to evaluate these tidelands when filled and ready for transfer. The evaluation was based only on the tidelands in their marshy state.

3) They approved a trade of acreage, our tidelands for Irvine uplands. WITHOUT any plan as to the subsequent usage of these lands.

4) They approved this trade WITHOUT benefit of any engineering studies which are absolutely mandatory in determining the feasibility of adopting the harbor lines approved by the Orange County Harbor District as a basis for the

tideland exchange.

5) They accepted the findings of the Evans' appraisal relative to the dollars involved without regard for the fact that the Evans' figures were based on a landscape architect's interpretation, not an engineering study. This assumed the islands to be fully developable which they are not.

6) They had no charter to question the constitutionality of the Enabling legislation, and they approved the trade without recommending that it be given Court review.

Let us explore some of the reasons why our previous State Lands Commission, in 1966, rejected this trade. As frequently cited in the press, the County will give to the Irvine Company 157 acres of filled tidelands, evaluated at $11,000,000.00 for this trade, in return for 450 acres of Irvine Company uplands and marsh islands, evaluated at $19. million. This represents an advantage to the County of $8. million according to the appraiser, Mr. Evans. We believe these figures are a gross misstatement of the facts, and we should like to point out why.

Of the 450 acres which the County will receive from the Irvine Company. 273 acres having an evaluation of $14. million will wind up under ten feet of water. This includes the 82.9 acres of islands evaluated at approximately $9. million. The islands are to be removed from the center of the channel and relocated along the sides of the new harbor lines after which the relocated property returns to the Irvine Company. What is the quality of the 177 acres which may remain as land for the County? It has an evaluation of $5. million; and we believe this is much too high. It includes the Big Canyon gully, $2.4 million evaluation for this trade, which may be said to be questionable for building because of lying below an earthfill dam. It includes 54.4 acres on which the County already holds an easement which permits public use for fishing and navigation, as mentioned previously. The location of much of this property at the extreme northern end of the bay places it in the paths of three flood control channels. It is here that we are to have our major beach and waterski area.

On the other hand, what does the Irvine Company get from us? Our 157 acres include both tidelands held in trust and patent lands on which the County holds the fishing and navigation easement. Before these tidelands may be traded to the Irvine Company, as cited above, they must be filled, at County expense, to 1" above mean high tide. When ready for conveyance to the Irvine Company, they will have become 157 acres of prime, buildable waterfront property which may be fingered to increase its length along the water by 3 to 1. Waterfront property sells in the Newport Beach area for $2,000 to $3,500 per front foot, or between $500,000 and $750,000 per acre.

It is easy to see why economists and realtors consider the filled tidelands to be worth a minimum of $100,000,000.00 at the time the Irvine Company gets clear title to them. Mr. Evans' appraisal, it must be repeated, was based on his opinion of their worth as unfilled, marshy area in relation to its being immediately "buildable." He did not evaluate them as they will exist in the state in which they are to be given away.

The Honorable Board of Supervisors urges this trade, because it claims that: 1) we have no access to the bay without it; 2) we can't afford the cost of development, and we can't pass a bond issue for it. We disagree with the Honorable Supervisors on both these points.

1. Access. We do not believe that the Federal Water Pollution Control Administration will be concerned particularly with this subject; so we will be brief. The public holds in trust on the west bluff of the Upper Bay 68.8

acres. We will give to the Irvine Company all but 6 of those priceless acres, despite the fact that we have access to most of the property at the present time, without any trade. So, the County's contention that the trade is mandatory to gain access to the shore from the uplands simply is not true. The purchase of two acres or less would give total access on the west bluff.

On the east bluff, we will give up 27.5 tideland acres for 59 acres of Big Canyon. The purchase of as little as 10 acres on this side would give total access from the uplands.

In addition, we have before the trade access to the entire shoreline of the Upper Bay by boat. When the tideland area becomes filled, fingered, and bulkheaded, God forbid, we shall lose all access to it by both land and water. Projecting seaward of the proposed bulkhead line along the properties to be conveyed to the Irvine Company will be the pierhead line which will extend out another 50 to 100 feet and give the owners of the waterfront homes 35 acres of water for their exclusive use.

The Irvine Company will realize from this trade approximately 35,000' along the harbor lines and will be able to increase that to approximately 13 miles of waterfront by fingering. The public will have three miles, or less than two miles if the dubious peninsula does not materialize. This scarcely can be called a public benefit, as envisaged in the tideland trusteeships.

2. Cost of development. For less than $10. million it should be possible to keep the entire bay, including the patent lands, as a public trust. This assumes that the County could be persuaded to condemn the necessary lands, including the marsh islands if they are found to be essential. We suggest that these lands should be purchased at a price more in accord with the tax assessor's figures than with the figures submitted by Mr. Evans.

It has been arranged to test the legality of the 1957 Enabling legislation by the County Auditor's refusing to pay a bill submitted by the Irvine Company for work done in the Upper Bay in conjunction with the trade. This will be a "friendly suit," with none of the voices of the major opposition's being able to be heard. The citizens have been checkmated so effectively that it's mandatory that the manner in which it was done be brought to your attention.

The second State Lands Commission (1967) requested an opinion on the Upper Newport Bay trade from the Attorney General's office. According to a spokesman from that office, the Lands Commission, therefore, became a client of the Attorney General. His report was prepared, at costs to all us taxpayers, for the exclusive use of the State Lands Commission. All attempts to secure a copy of this report have proven fruitless; because, as the spokesman said, he cannot divulge any information about the case of the client whom he will represent in Court. Thus the Attorney General not only pleads the case of the State Lands Commission, but he at the same time defends his own position upon which the State Lands Commission decision was based. Further, according to the spokesman, the Attorney General, as counsel for the State Lands Commission, also represents the citizens of California; because the State Lands Commission are their elected representatives who, supposedly, have voted in the citizens' best interest.

Where does that leave those of us who have fought almost six years to retain the Upper Bay in the public domain? We were well represented by the State Lands Commission in 1966 when they declined the trade. Now, however, we have no spokesman in any of the governmental agencies which ordinarily would protect our rights. We have been advised by several lawyers who have contacted us that this trade is unconstitutional and that we should file a taxpayers' suit. The costs of such a suit, in this instance, according to the opinions of all our advisors, will run not less than $100,000 and probably as high as $200,000.

How is a group of average private citizens going to raise this large sum of money? We see no hope that we will be able to be represented unless we can persuade some millionaire or some well-financed national organization to carry on the battle. In Orange County that is unlikely. Joan Irvine, as quoted in today's Daily Pilot, describes the 88,000 acres of Irvine Ranch as "potentially the most valuable piece of land under single ownership in the world today . . . with an estimated market value of $1 billion." With all that, the Irvine Company demands our bay as well. Is there any question where the power lies?

Sacrificed to real estate developers and their financiers, the Upper Bay will become a heavily fingered commercial and residential resort for the primary use of the very rich. Concealed has been the fact that the products of the flood control channels somehow will have to be gotten rid of - probably by large conduits emptying far out in the ocean, at great cost.

This carefully planned and merchandised transaction demonstrates too well that present so-called guarantees for the citizens' access to the water are ineffectual. Considering the quality of the water in the patent area of the Upper Newport Bay at the present time, access isn't of much consequence. No one would want to put in so much as a toe.

We do not know how you can help us in our endeavor, inasmuch as these tidelands are the responsibility of our local Board of Supervisors who show no desire to live up to their role of trustee. We do have some suggestions for the future which we think might be considered:

1) Recommend that the Corps of Engineers be given the right to study and approve not only the harbor lines and what lies seaward of them, but also the proposed uses of the properties landward of the harbor lines.

2) Recommend that in Federal waters, such as Upper Newport Bay, no dredging or other altering of the ecology be permitted to take place without permission from an accredited agency. We suggest that this agency might be a newly-created non-political Bureau of Environmental Health which would interpret and correlate the findings of such departments as Fish and Game, Natural Resources, Water Pollution, etc. Of what use are the reports of all these departmental experts if the knowledge contained in them is never shared or implemented? The Bureau of Environmental Health would be able to render a decision in the best public interest indicated by the data supplied by the various departments. Hopefully, this would preclude illegal dikes and ill-advised oil wells.

Thank you for the opportunity to explain our case. We hope the information will be helpful to you in adopting a program for the protection of our estuaries as well as our coastline.

Respectfully,

J. Frank Robinson

Orange County Tidelands Association

J. Frank Robinson, chairman

Mr. Irving M. Terzich
Pacific Southwest Region
Federal Water Pollution
Control Administration
760 Market St.
San Francisco, Calif. 94102

Dear Mr. Terzich,

Please include the enclosed study, "*Vanishing Lagoon Marsh Habitat of Southern California*", in the record of testimony for the Water Quality Management for Estuaries hearings, as per our telephone conversation.

The study is drawn from my personal experience of over 1,000 hours of wildlife observation and photography in the areas concerned, and I hope it will prove pertinent to your report.

May I request two copies of the resulting report when it is completed?

With thanks,

Colin Cantwell
225½ Carroll Canal
Venice, Calif. 90291

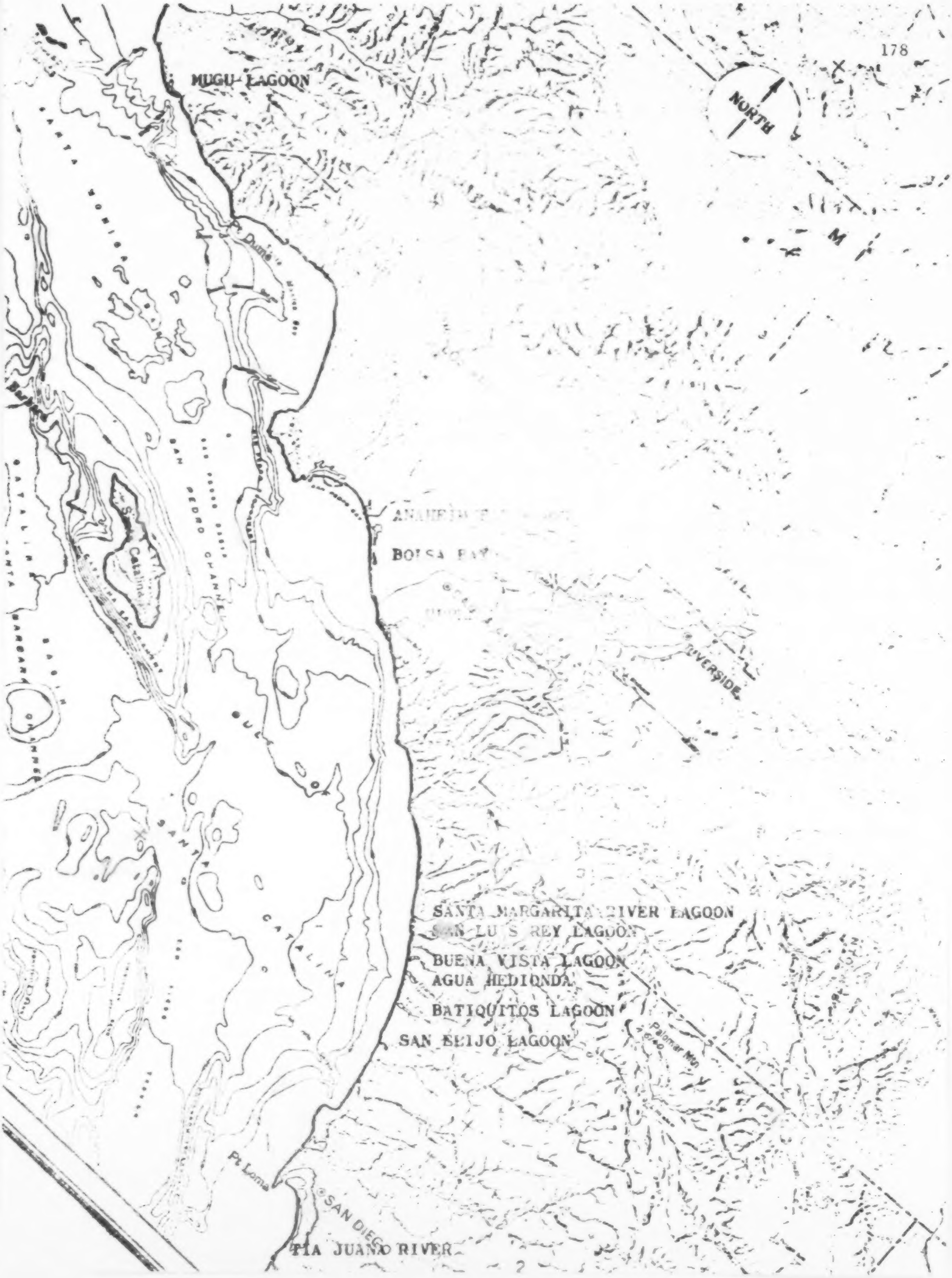
# Vanishing Lagoon Marsh Habitat of Southern California

A survey of present uses with
suggestions for future development.

by Colin Cantwell

For the Clairmont Conservation Committee

March 1969


NORTH
MUGU LAGOON
Dume
SANTA MONICA BASIN
SAN PEDRO CHANNEL
SANTA CATALINA BASIN
Santa Catalina
GULF OF SANTA CATALINA
ANAHEIM BAY
BOLSA BAY
RIVERSIDE
SANTA MARGARITA RIVER LAGOON
SAN LUIS REY LAGOON
BUENA VISTA LAGOON
AGUA HEDIONDA
BATIQUITOS LAGOON
SAN ELIJO LAGOON
Palomar Mtn
Pt Loma
SAN DIEGO
TIA JUANA RIVER

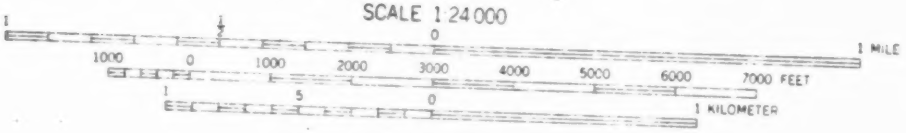
# VANISHING LAGOON MARSH HABITAT
# OF SOUTHERN CALIFORNIA

To maintain a representative environment supporting a varied birdlife population, this survey suggests future uses of Southern California lagoon and marsh habitats.

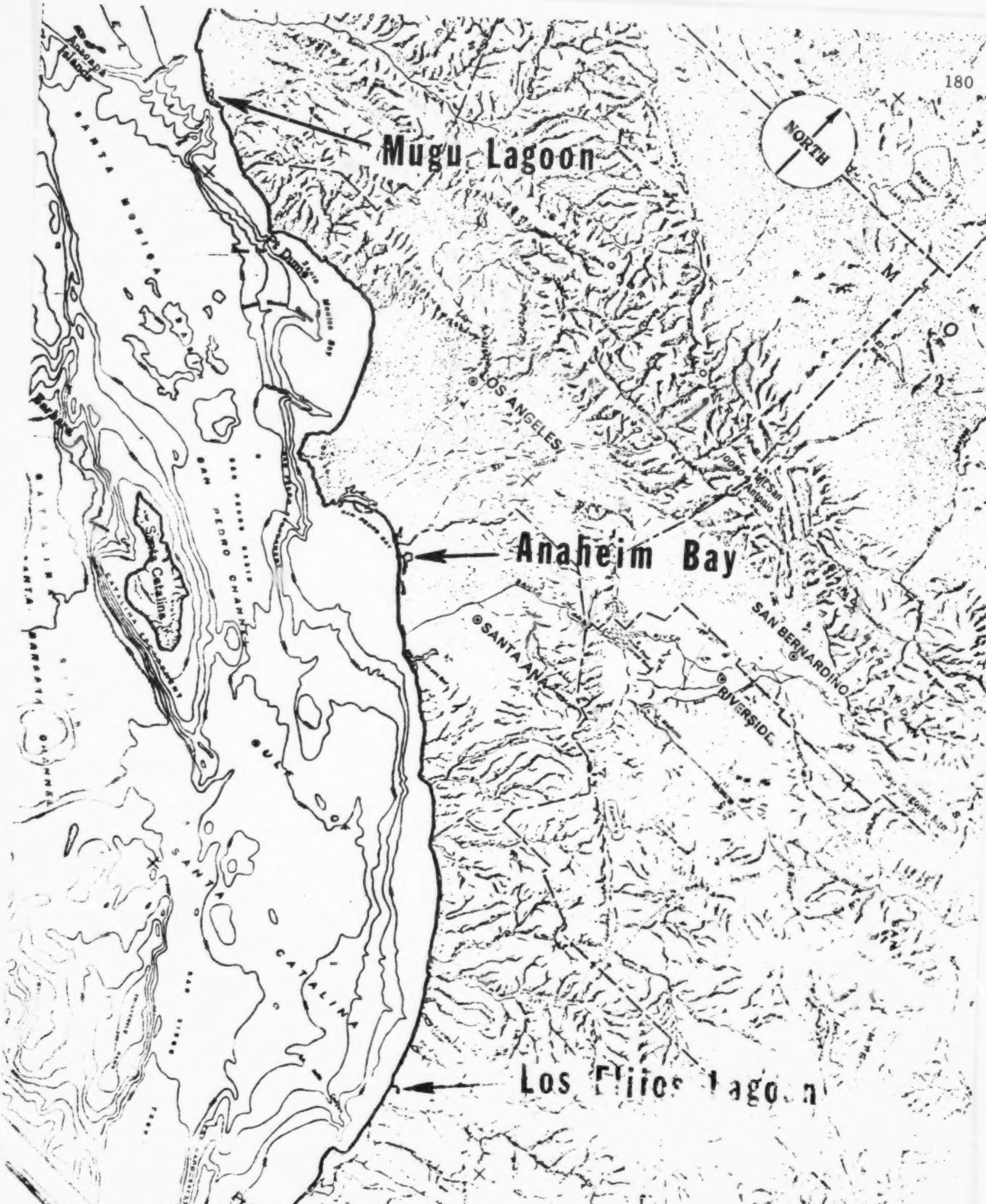
Present uses and locations of the diminishing lagoon marsh resource are briefly noted. Included is the following: three major marsh habitats, Upper Newport Bay, Bolsa Bay, the southern lagoons, and the Tia Juana River bottomland.

The conspicuous wildlife of marshes and lagoons is birdlife which is used as an indicator of supporting ecological systems and subsystems. Three groups--marsh species, lagoon species, and bay ducks and geese--are noted. (See appendix for composition of groups.)

All detail topographic maps are from the U. S. Geological Survey 7½ minute series.



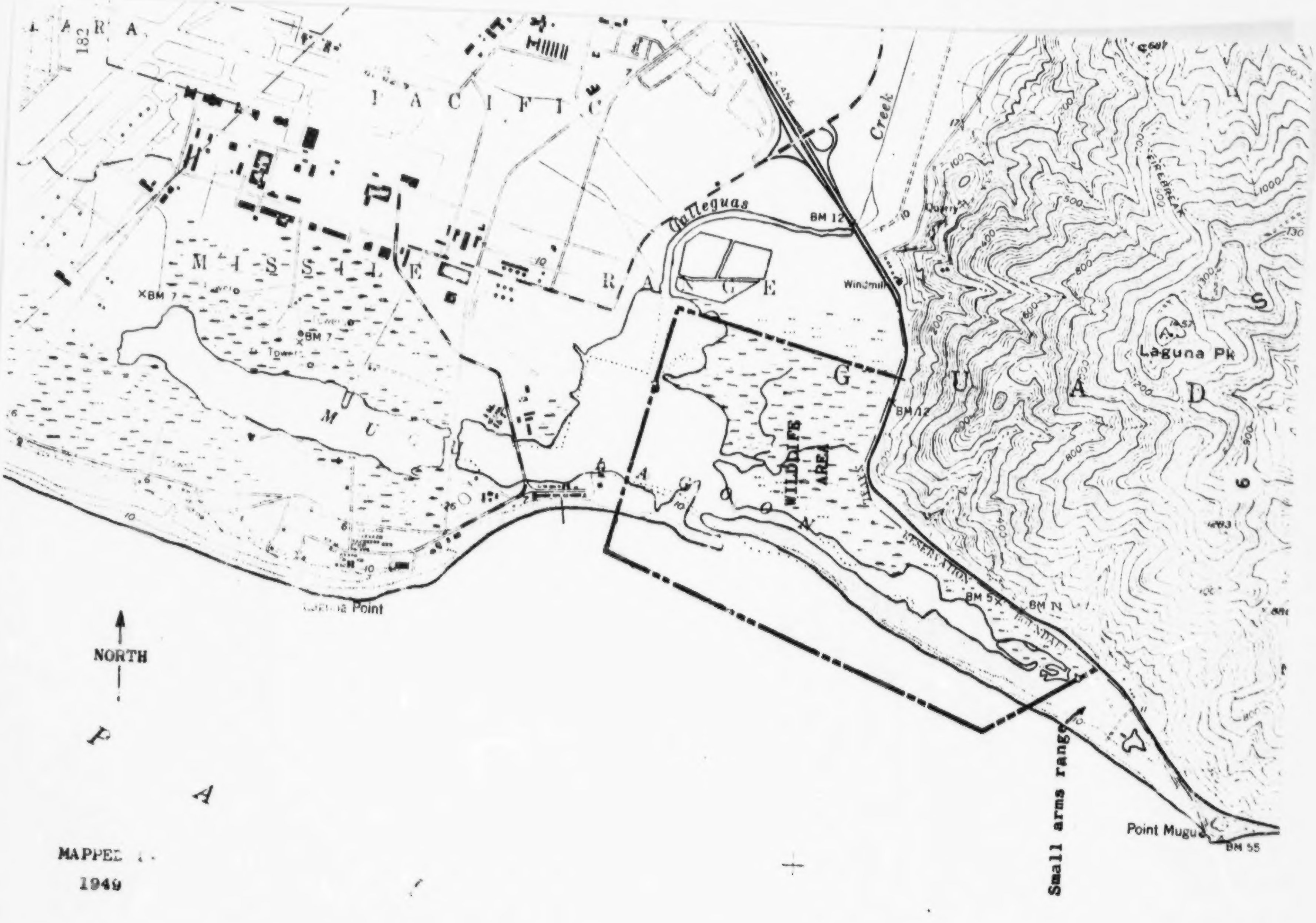
The generous personal assistance of Mrs. Miki Bratt was particularly helpful in the preparation of this report.


Mugu Lagoon
Anaheim Bay
Los Elijos Lagoon
NORTH
Anacapa Islands
SANTA MONICA
Pt Dume
Santa Monica Bay
LOS ANGELES
SAN PEDRO CHANNEL
Santa Catalina
SANTA ANA
RIVERSIDE
SAN BERNARDINO
Mt San Antonio
GULF OF SANTA CATALINA
Pt Loma
SAN DIEGO

# Marshes:

Of fifteen or more major marshes on the Southern California coast in 1900, three remain suitable for wildlife preservation. The marshes have been victims of population and economic pressures-- land fill, harbor development, housing development, pollution from domestic waste, and oil, chemical and other industrial waste.

The three surviving marsh habitats, Mugu Lagoon, Anaheim Bay, and Los Elijos Lagoon, almost equally spaced from Ventura to the Mexican border, assume increasingly vital importance to migrating wildlife as the minor salt water marshes continue to disappear.


PACIFIC
MISSILE RANGE
MUGU LAGOON
Calleguas
Creek
BM 12
Quarry
Windmill
XBM 7
BM 7
Tower
WILDLIFE AREA
RESERVATION BOUNDARY
BM 5
BM N
GUADALASCA
Laguna Pk
1457
Laguna Point
Point Mugu
BM 55
Small arms range
NORTH
PA
MAPPED
1949

**MUGU LAGOON:** Mugu Lagoon, part of the Point Mugu Pacific Missile Range facility in Ventura County, receives heavy birdlife use.

**WILDLIFE:** Bird use includes marsh species, lagoon species, shore birds, cormorants and pelicans.

**PRESENT USE:** Public observation is possible without entry from beside the bordering highway. It is a popular birdwatching site. The area indicated on the map apparently functions as a buffer between the restricted military portion of the base and the public highway. In any event its military use has been consistant with the wildlife use.

**SUGGESTED USE:** The function as a wildlife reservoir is here best served by maintaining a virgin marsh-lagoon habitat with no public entry. Some form of protection consistant with military use is suggested. Perhaps some designation could be devised that would allow wildlife protection to be considered in military planning continuing the present de facto multiple beneficial use.

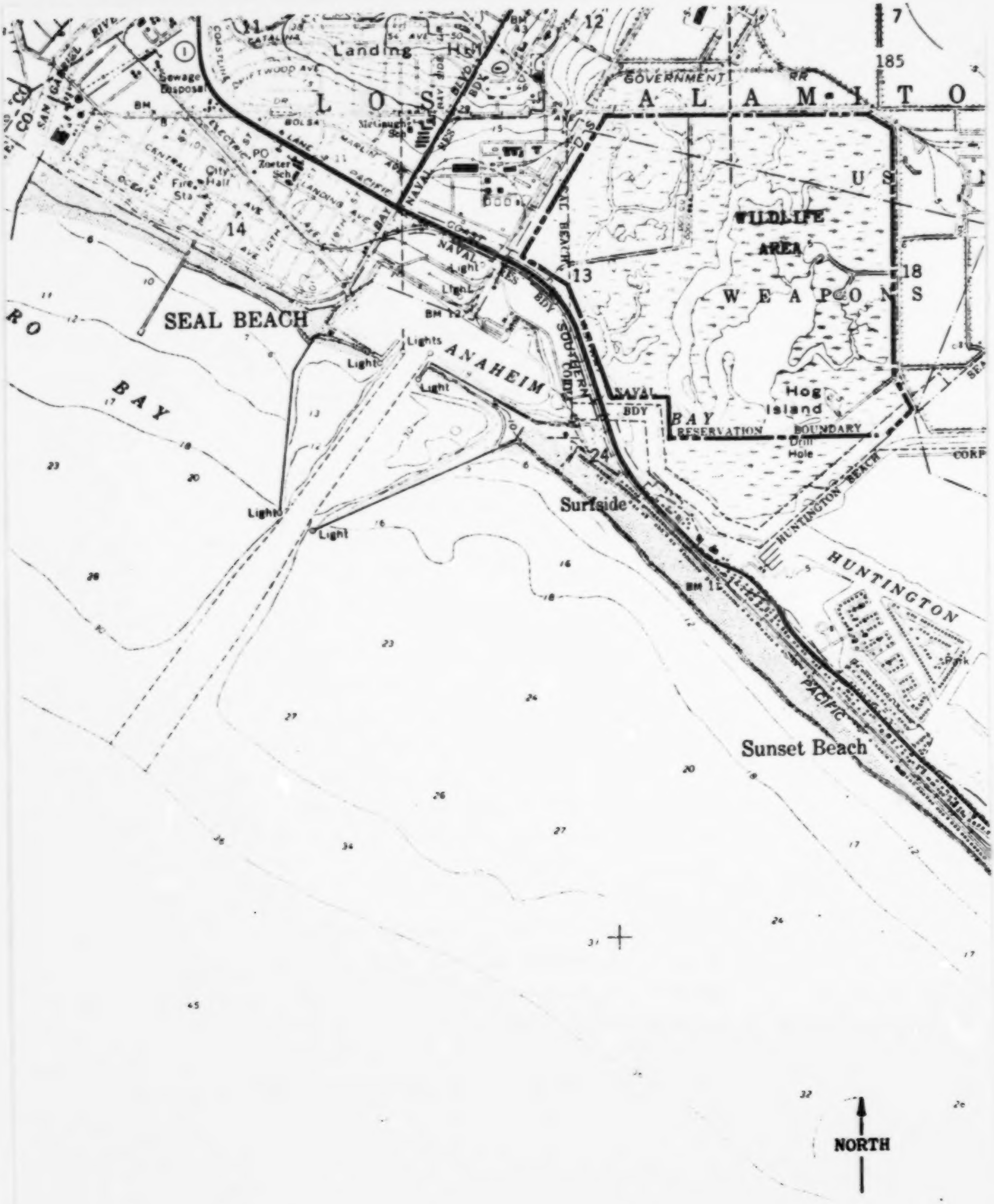
**ANAHEIM BAY:** The Anaheim Bay Marsh, like Mugu Lagoon, is part of a large naval reservation, namely Los Alamitos Naval Weapons Station.

**WILDLIFE:** Bird use is heavy including both marsh and lagoon species. It is the only area besides Newport Bay used by heavy concentrations of migrating bay ducks and geese.

**PRESENT USE:** Public observation is possible without entry from a bordering highway. Military use to date has been compatible with wildlife reservoir function.

**SUGGESTED USE:** As at Mugu, the best use is to maintain a virgin marsh-lagoon habitat with no public entry. Even if military security were not involved no public access should be allowed. It would interfere with the wintering waterfowl which are easily frightened by people.

As at Mugu some formal designation as a wildlife sanctuary as well as a military security buffer would be desirable to emphasize and formalize the present de facto multiple beneficial use, so that future plans would recognize and maintain present use.



MAPPED IN
1965

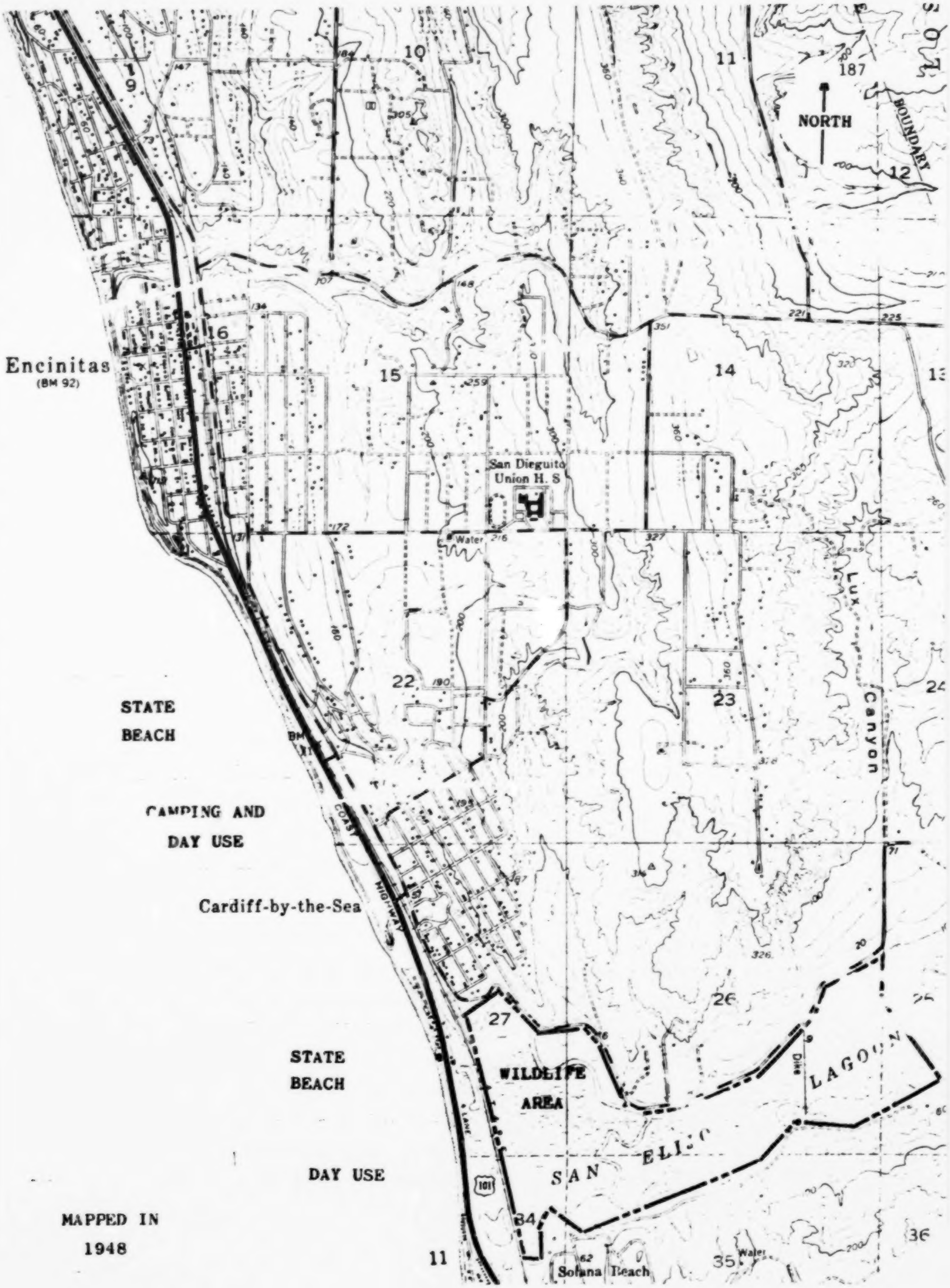
**SAN ELIJO LAGOON:** San Elijo Lagoon is a large undeveloped marsh habitat. It is adjacent to San Elijo State Park day-use and overnight camping facilities. (While full to capacity in the summer months, this park is not heavily used when migrating and wintering species attract the birdwatcher.) The marsh is accessible by paved road along the north side, and farm road on the south.

**WILDLIFE:** Marsh wildlife use is heavy. A wildlife management program could enlarge species use. For instance, planting of cattail areas would attract herons and rails and help to compensate for the catastrophic reduction of cattail marsh habitat elsewhere in Southern California.

**PRESENT USE:** The major part of the marsh is presently unused and undeveloped except for a sewage treatment facility at one edge. There is no apparent adverse effect on the marsh. The far upper end is fenced as part of the adjacent agricultural use pattern.

**SUGGESTED USE:** Lower San Elijo Lagoon, as indicated on the map, should be preserved and managed as a marsh habitat. Public nature trails could be developed connecting to existing roads. Observation blinds screened by cattail plantings along seperated open water areas would allow public entry to be compatible with a basic wildlife reservation function.

Reproduced from best available copy.


NORTH
BOUNDARY
Encinitas
(BM 92)
San Dieguito Union H. S
Water
Lux Canyon
STATE BEACH
CAMPING AND DAY USE
Cardiff-by-the-Sea
COAST HIGHWAY
STATE BEACH
WILDLIFE AREA
SAN ELIJO LAGOON
Dike
DAY USE
101
MAPPED IN 1948
Solana Beach
9
10
11
12
13
14
15
16
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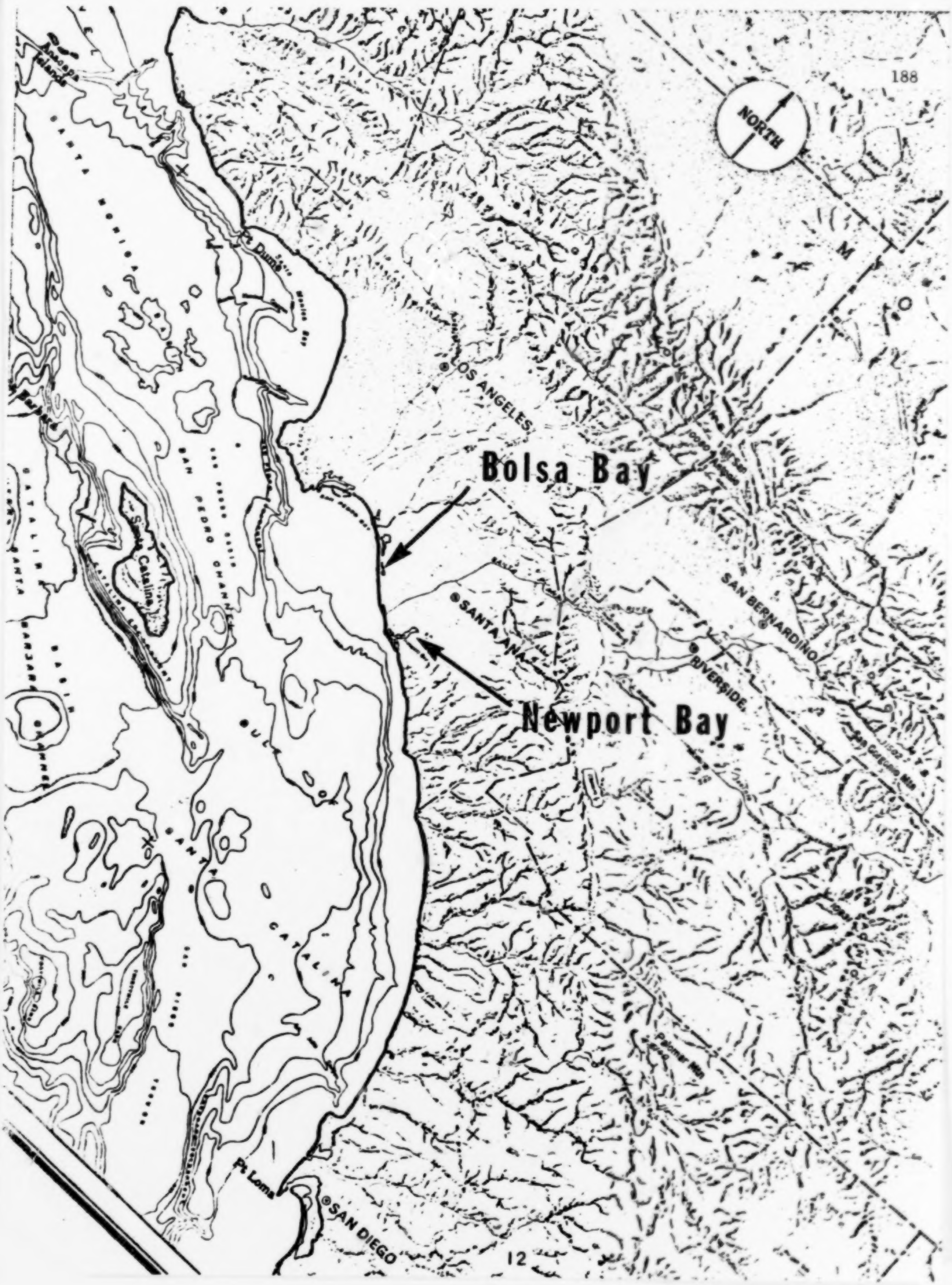
23
24
26
27
34
35
36
11


Anacapa Islands
Pt Dume
SANTA MONICA BASIN
NORTH
LOS ANGELES
Bolsa Bay
SAN PEDRO CHANNEL
Santa Catalina
SANTA ANA
Newport Bay
SAN BERNARDINO
RIVERSIDE
San Gorgonio Mtn
GULF OF SANTA CATALINA
Palomar Mtn
Pt Loma
SAN DIEGO
12

## Orange County:

Upper Newport Bay

Bolsa Bay

**UPPER NEWPORT BAY:** Located adjacent to Newport Bay in the highly populated coastal area of Orange County.

**WILDLIFE USE:** Bay ducks seek out this unique habitat. It provides the only large way station for migrating and wintering bay ducks on the Southern California coast.

**RELATIVE BAY DUCK POPULATIONS:** (Figures vary from day to day and with season, but proportions stay about the same.)

| | |
|---|---|
| Mugu Lagoon | 1,500 |
| Malibu Lagoon | 150 |
| Marina Del Rey | 100 |
| Anaheim Bay Marsh | 5,000 |
| Bolsa Bay | 500 |
| Upper Newport Bay | 35,000 |
| San Luis Rey R. | 50 |
| Buena Vista Lagoon | 2,000 |
| Agua Hedionda | 50 |
| Batiquitos Lagoon | 500 |
| San Elijo Lagoon | 1,000 |
| Del Mar | 50 |
| Los Penasquitos R. | 400 |
| Tijuana R. | 400 |

**BAY DUCK CONCENTRATION:**

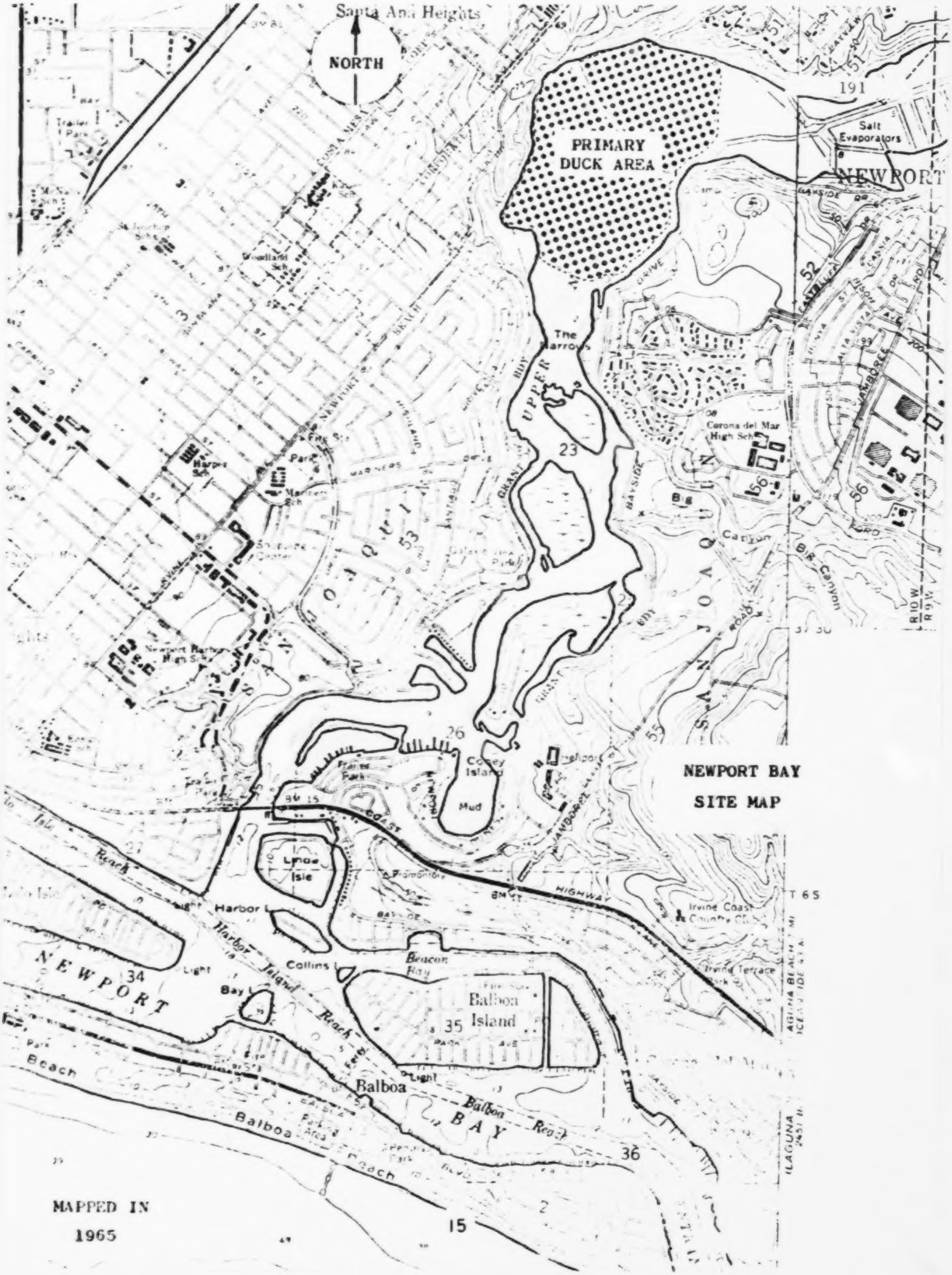
Seventy five percent of the bay ducks congregate in 20% of Upper Newport Bay. (See "PRIMARY DUCK AREA" on Site Map.)

**PRESENT USE:** (Numbers refer to Use Map.)

Area 1. Fully developed for residential use.

Area 2. Fully developed for commercial recreation use.

Area 3. Undeveloped. Used for boating, and by Lagoon and Marsh Species.



**NEWPORT BAY**

**SITE MAP**

MAPPED IN

1965

**Area 4&5** Ducks mass in this portion of Upper Newport Bay, all of which is designated as wildlife sanctuary. This area is extremely popular with birdwatchers, and rare waterfowl are often seen here. The effectiveness of the sanctuary is impaired by the practice of nearby gun clubs hiring boatmen to scare the ducks off the sanctuary and on to the ponds which they maintain.

**Area 6.** Diked into ponds for commercial salt production.

**SUGGESTED USE:**

**Area 3.** Maintenance of good tidal flow is important in this area. Development, such as commercial recreation, consistant with free tidal flow would be appropriate.

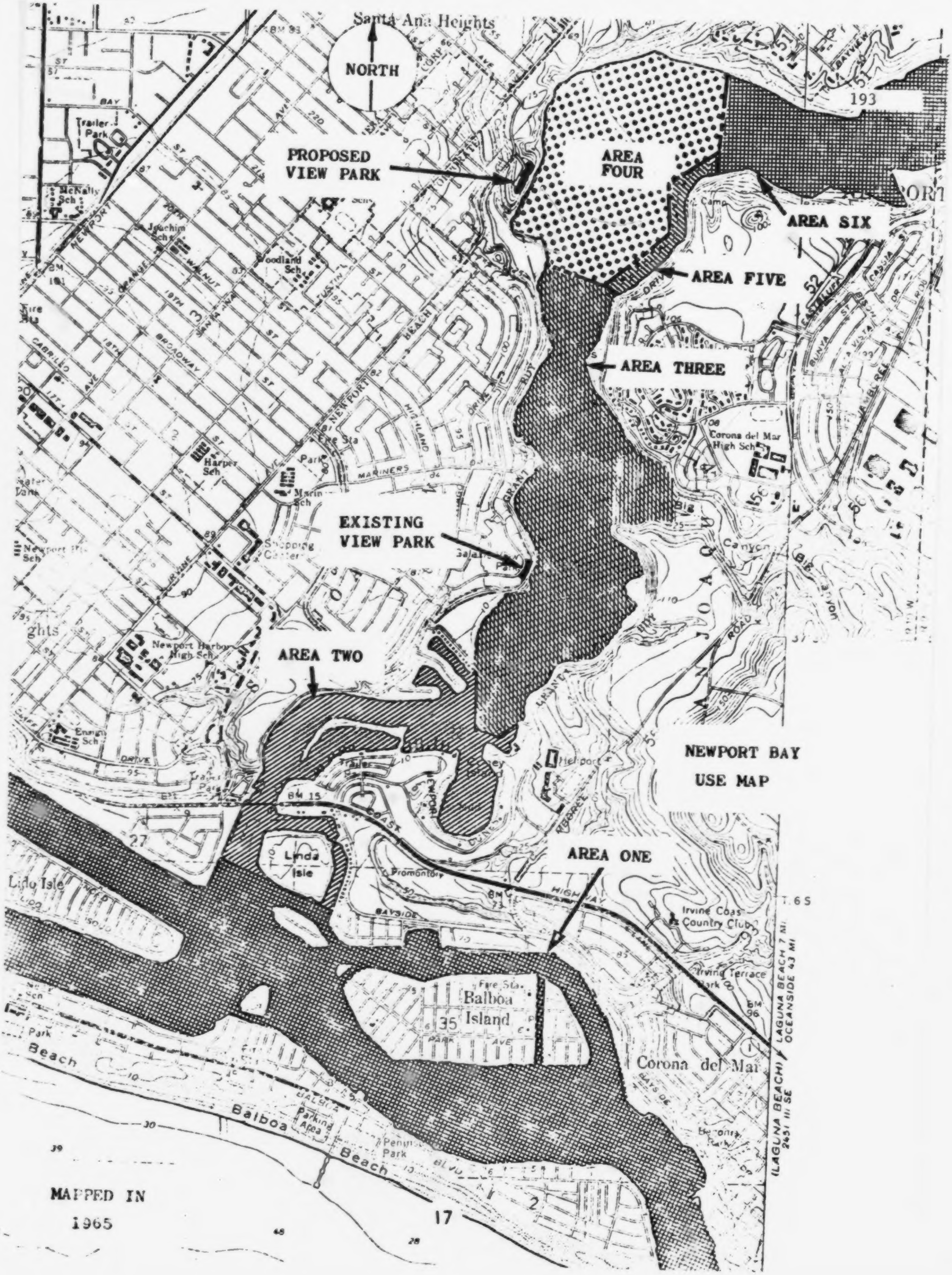
**Area 4.** Should be maintained as wildlife sanctuary for migrating and wintering bay ducks. Most of Area 4 is naturally tidal. (As may be seen when the median dike is broken by flood, as at this writing.) Dikes, tidal flow, and buffer zones should be managed to the advantage of the duck population.

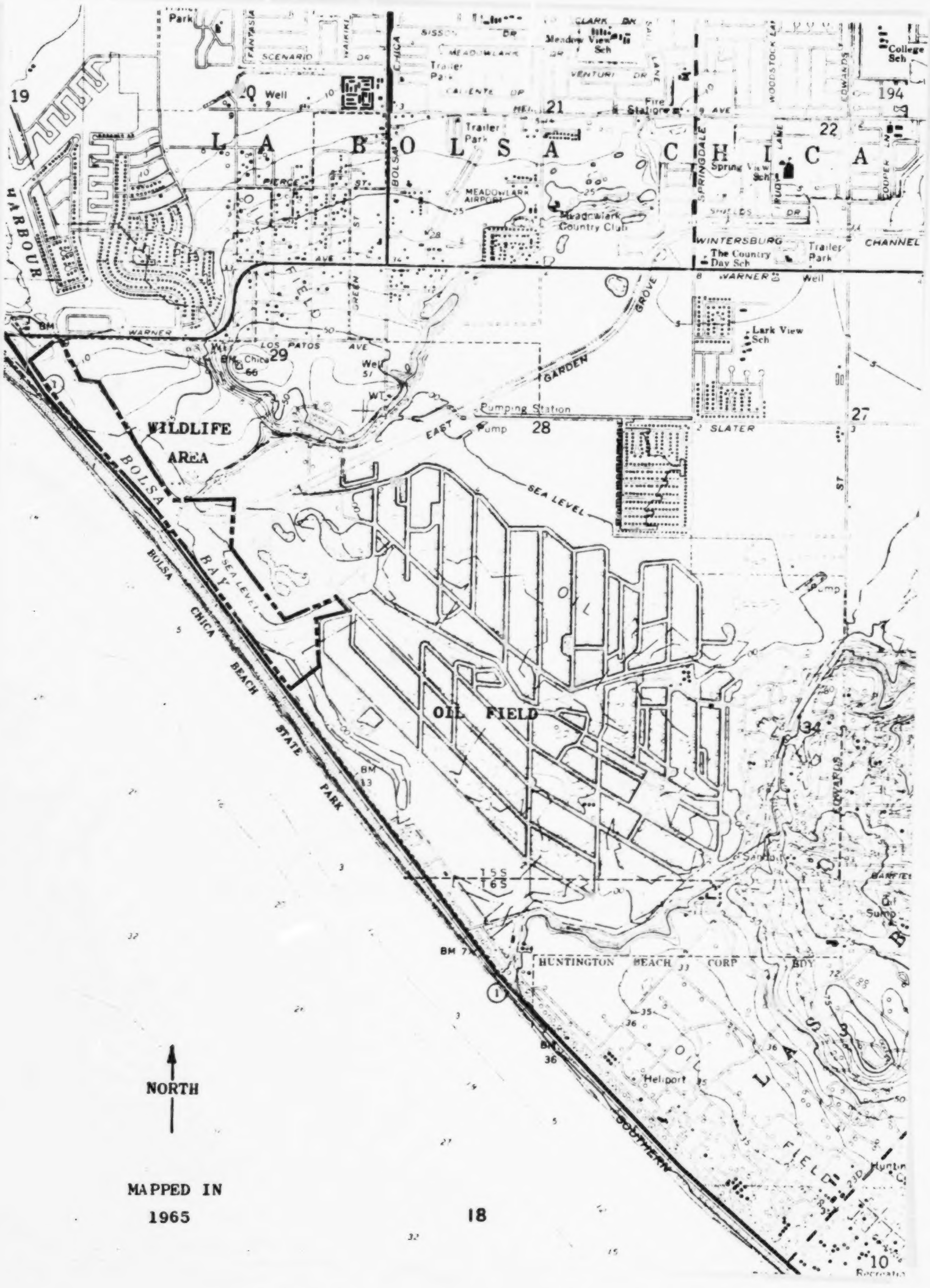
A view park should be developed in the area now used for birdwatching. (See map.)

**Area 5.** If Area 6 were developed with boating facilities, the connecting channel should be located here, next to the road, to minimize disturbance to the duck population. Wild ducks are easily frightened by human activity, and avoid this area now.

**Area 6.** Any Huntington Harbour-style development, residential tract with boating facilities, should be restricted to this area. Upper Newport Bay was heavily flooded during the storms of February 1969. Any development in this area would have been severely damaged.

There is also an incipient circulation problem. When a fresh water influx reverses the salt water dominence, salt water life in the channels dies off resulting in release of sulfur dioxide, causing a powerful stench and property damage from blackening of paint and corroding metals. (This problem recurs in Venice, California.)


NEWPORT BAY
USE MAP
NORTH
PROPOSED VIEW PARK
AREA FOUR
AREA SIX
AREA FIVE
AREA THREE
EXISTING VIEW PARK
AREA TWO
AREA ONE
MAPPED IN
1965
Santa Ana Heights
Trailer Park
McNally Sch
Joachim Sch
Woodland Sch
Harper Sch
Mariners Sch
Newport Harbor High Sch
Ensign Sch
Corona del Mar High Sch
Big Canyon
Irvine Coast Country Club
Irvine Terrace Park
Linda Isle
Lido Isle
Balboa Island
Corona del Mar
Balboa Beach
Promontory
Bayside
Fire Sta
Shopping Center
Heliport
NEWPORT
BROADWAY
MARINERS
COAST HIGHWAY
LAGUNA BEACH 7 MI
OCEANSIDE 43 MI
LAGUNA BEACH
2451 III SE
T. 6 S
193
27
35
2
17



NORTH

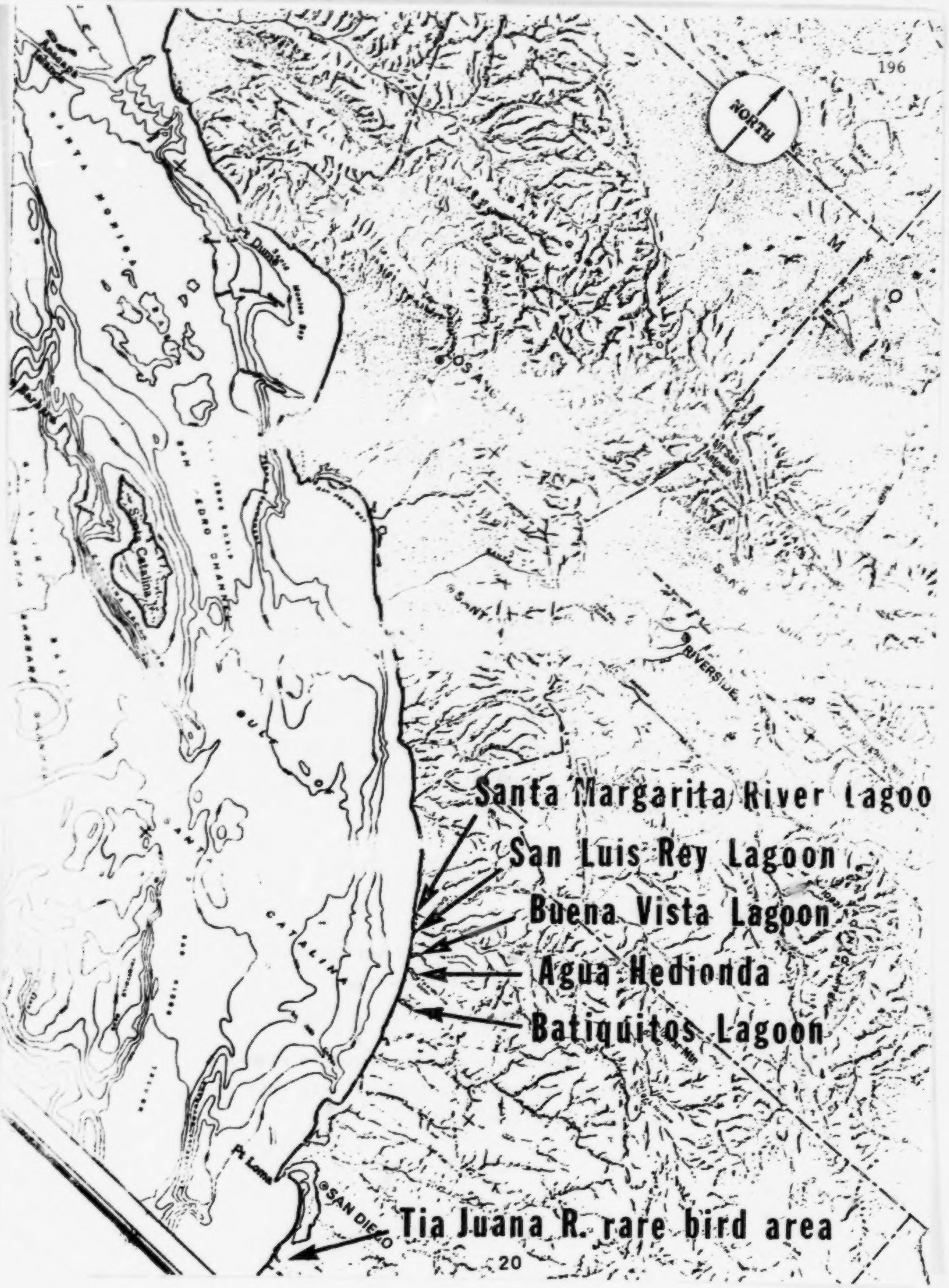
MAPPED IN
1965

**BOLSA BAY:** Bolsa Bay is located adjacent to Bolsa Chica Beach State Park.

**PRESENT USE:** The portion north of Warner Ave. has been developed as Huntington Harbour housing tract. The eastern portion has been developed as an oil field.
The area indicated on the map is still suitable for wildlife and receives moderate to heavy use by lagoon species. Unusual species are sometimes seen.

It is within the Los Angeles-Long Beach metropolitan area, highly accessible, and very popular as a birdwatching site. The entire are is easily seen from the highway.

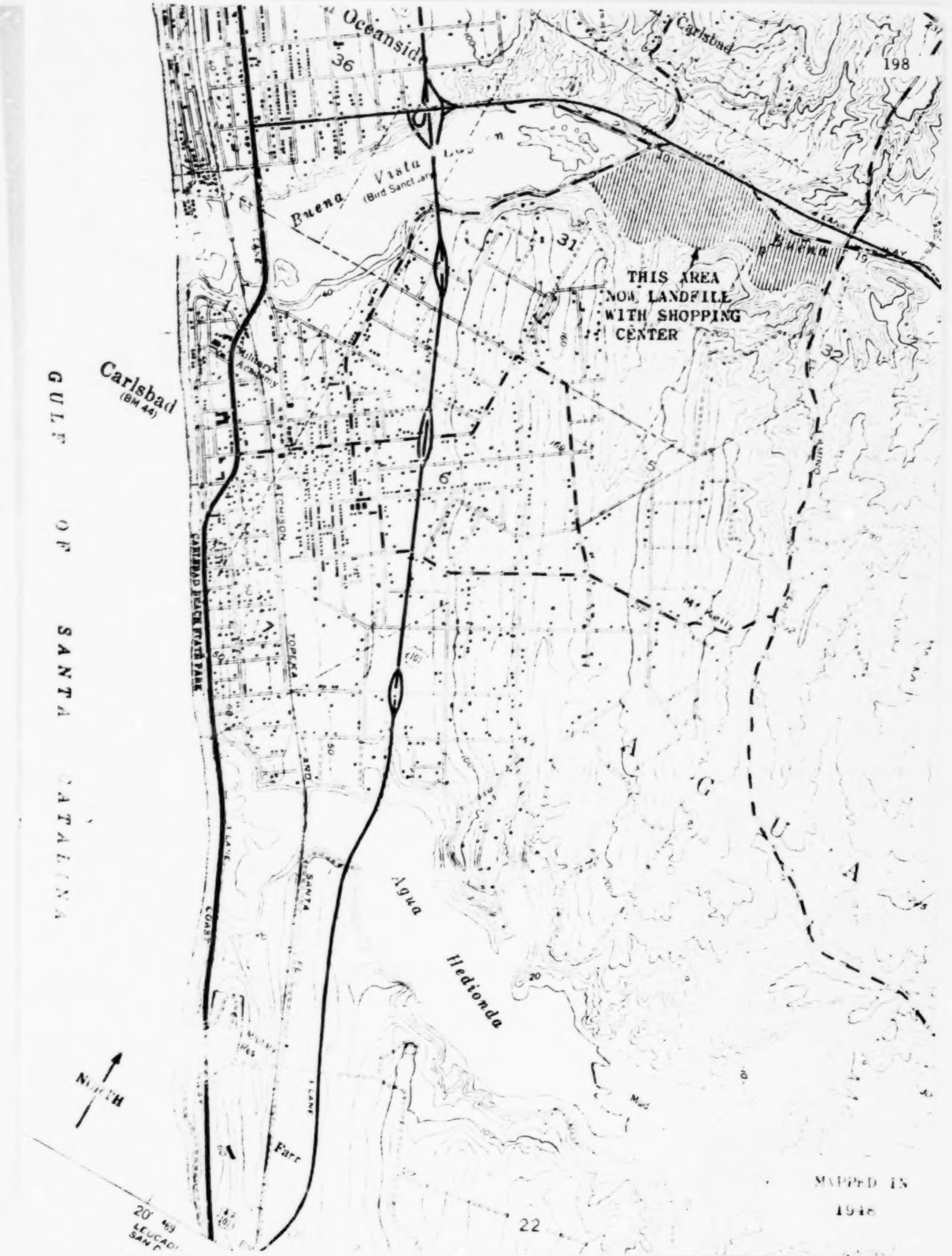
**SUGGESTED USE:** Protection to ensure continuation of present wildlife use as part of the mass urban diversified recreation program.


NORTH
Santa Monica
Pt Dume
Los Angeles
San Pedro Channel
Santa Catalina
Catalina
Riverside
Pt Loma
San Diego
Santa Margarita River Lagoo
San Luis Rey Lagoon
Buena Vista Lagoon
Agua Hedionda
Batiquitos Lagoon
Tia Juana R. rare bird area
20

# The Southern Lagoons:

As a geographical and biological entity these land/water features are rapidly disappearing from California. Development to date has often been thoughtless and ugly. With present understanding, future development should respect the integrity and identity of these lagoons and preserve them as scenically features. It is time they were recognized as an extremely valuable resource.

| | |
|---|---|
| **SANTA MARGARITA RIVER LAGOON:** | On Camp Pendleton Naval Reservation. No public access; not observed. |
| **SAN LUIS REY LAGOON:** | On the edge of Oceanside. Supports almost no wildlife. Why? Example of ugly edge of town development. |



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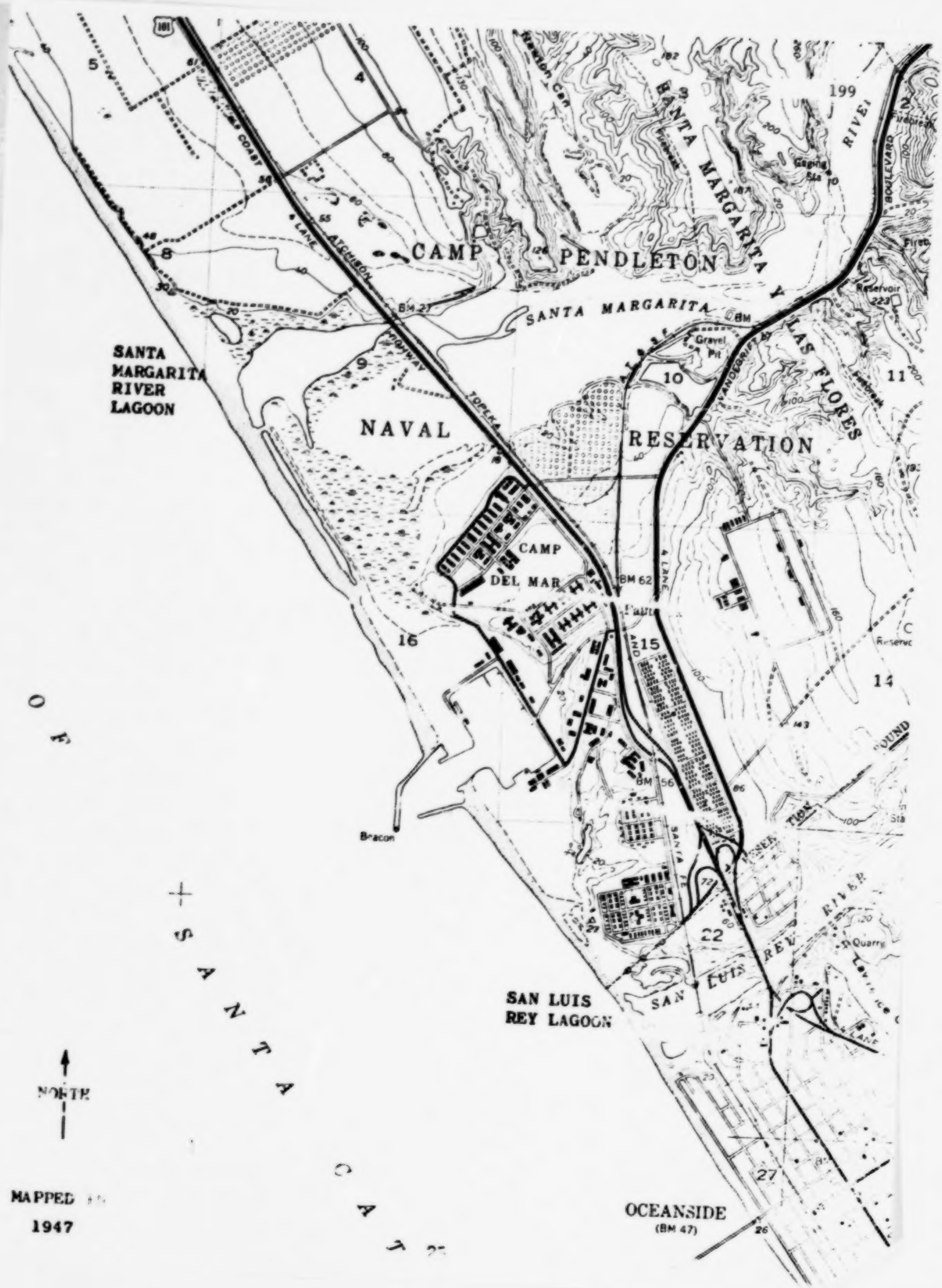
1946


CAMP PENDLETON
SANTA MARGARITA Y LAS FLORES
NAVAL RESERVATION
SANTA MARGARITA RIVER
SANTA MARGARITA RIVER LAGOON
CAMP DEL MAR
SAN LUIS REY RIVER
SAN LUIS REY LAGOON
OCEANSIDE
(BM 47)
GULF OF SANTA CATALINA
Gravel Pit
Reservoir
Beacon
Quarry
Gaging Sta
BM 27
BM 62
BM 56
ATCHISON TOPEKA AND SANTA FE
COAST HIGHWAY
101
4 LANE
199
NORTH
MAPPED 1947

**BUENA VISTA LAGOON:** Maintained as a bird sanctuary with heavy use by lagoon species.

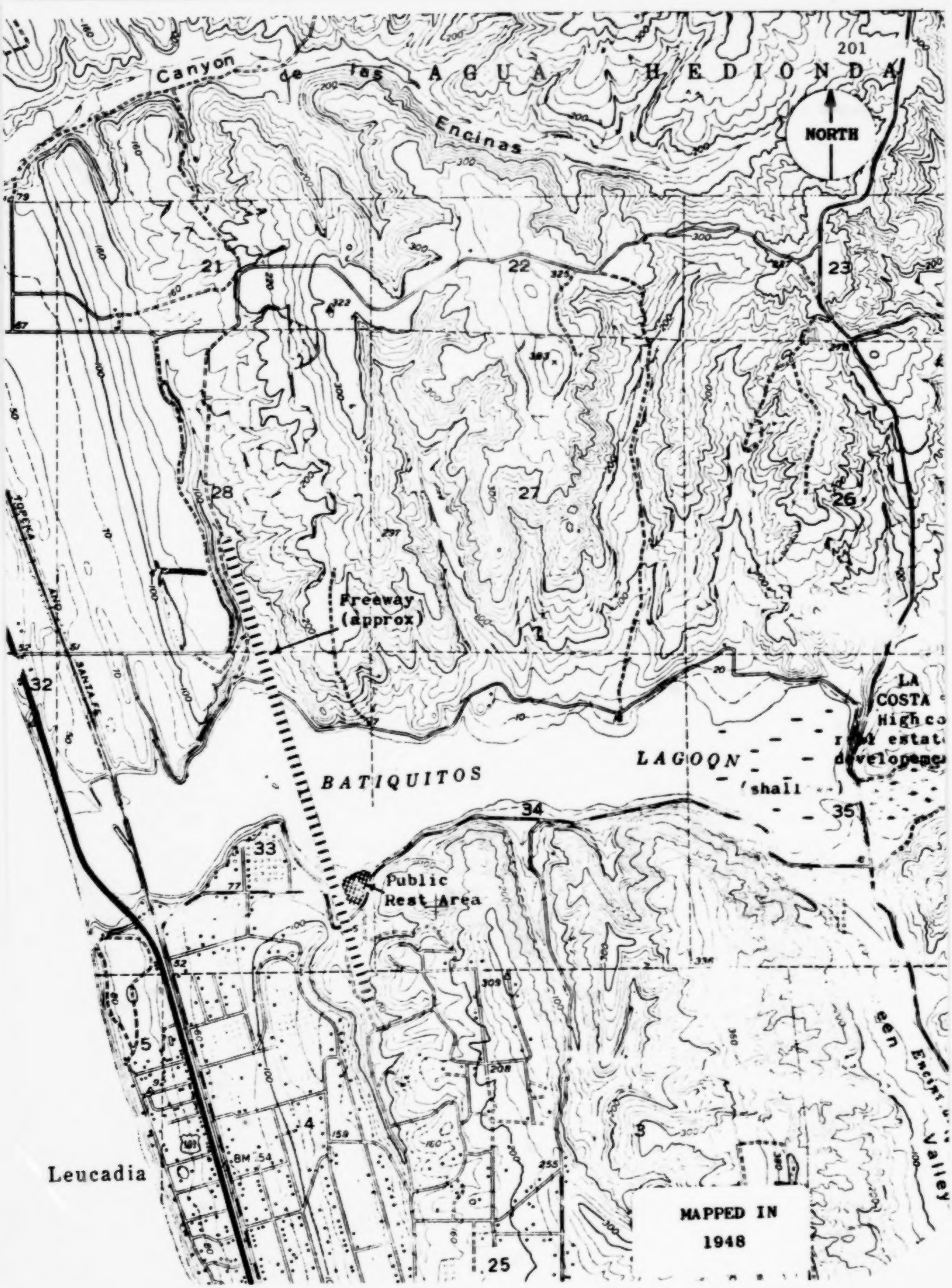
The large cattail marsh at the east end has been filled in for a shopping center, typical of lagoon-marsh erosion by development.

Remaining lagoon habitat should continue to be maintained as a wildlife sanctuary.

**AGUA HEDIONDA:** Developed for fishing and boating harbors, with residential Carlsbad creeping down to the north shore. Power plant on the southwest end presents a dreary outlook. Supports very little birdlife. Why?

**BATIQUITOS LAGOON:** The most lake-like of all the lagoons, very beautiful. Supports moderate bay duck population, mostly Shovelers. There is public road access all along the south shore, gently sloping ranch land down to the north shore, and La Costa, a high cost development just beyond the east end.

Suggested use is primarily as a scenic boating lake which should include public access on the south shore. This lagoon provides a last chance for a really beautiful scenic development.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Canyon de las AGUA HEDIONDA
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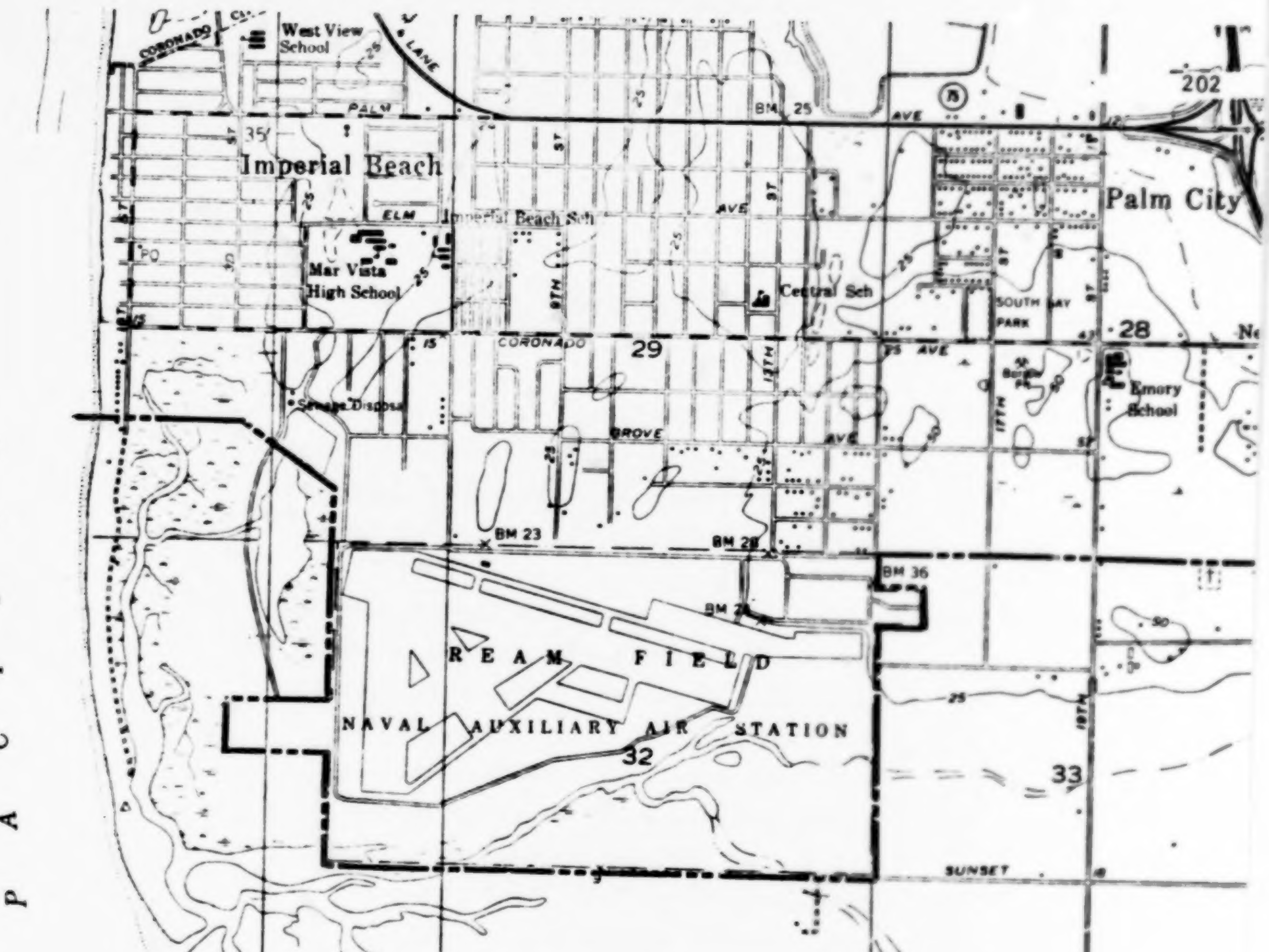

MAPPED IN
1953

Reproduced from best available copy.

# Tia Juana River rare bird area

One of the richest and strangest habitats in California is located in the Tia Juana River bottomland which occupies the coast between San Diego and the Mexican border.

**WILDLIFE:** There is heavy use by the lagoon, marsh, and shore birds normally native to the area. But in addition, Passerine species not ordinarily seen in California, the West, and even some not otherwise seen in North America are observed in the bottomland, in agricultural as well as lagoon-marsh habitat. The reasons for species richness are not understood, and the area should be studied.

**PRESENT USE:** About 1/3 of the area is undeveloped, most of the remainder is used for agriculture. The shore area is much used for beach recreation. The area is heavily used for birdwatching because more than anywhere else in California here is the chance for the ornithological discovery.

**SUGGESTED USE:** Should be recognized and designated as a wildlife sanctuary for the study and protection of all bird life. Undeveloped areas should remain in the present natural state. Agricultural areas should be protected from San Diego urban encroachment by a preserve/open-space designation.

## APPENDIX

### MARSH SPECIES

- AVOCET, AMERICAN
- BITTERN, AMERICAN
- BLACKBIRD, BREWERS
  - , RED WINGED
- COOT
- CURLEW, LONG BILLED
- DOWITCHER, LONG BILLED
  - , SHORT BILLED
- DUNLIN
- EGRET, COMMON
  - , SNOWY
- GALLINULE, COMMON
- GODWIT, MARBLED
- GREBE, PIED BILLED
- GULL, BONAPART'S
  - , CALIFORNIA
  - , HEERMANS
  - , RING BILLED
  - , HERRING
- HAWK, MARSH
  - , SPARROW
- HERON, BLACK CROWNED NIGHT
  - , GREAT BLUE
  - , GREEN
- IBIS, WHITE FACED
- KILLDEER
- KINGLET, RUBY CROWNED
- KITE, WHITE TAILED
- MEADOWLARK, WESTERN
- OWL, SHORT EARED
- PHOEBE, BLACK
- PIPET, WATER
- PLOVER, BLACK BELLIED
  - , GOLDEN
  - , SEMIPALMATED
  - , SNOWY
- RAIL, CLAPPER
  - BLACK
  - SORA
  - VIRGINIA
- SANDERLING
- SANDPIPER, LEAST
  - , SPOTTED
  - , STILT
  - , WESTERN

### MARSH SPECIES

- SHRIKE, LOGGERHEADED
- SNIPE, COMMON
- SPARROW, FOX
  - , LINCOLN'S
  - , SAVANNAH
  - , SONG
  - , WHITE CROWNED
- STILT, BLACK NECKED
- TURNSTONE, BLACK
  - , RUDDY
- WARBLER, AUDOBON'S
- WHIMBREL
- WILLET
- WREN, LONG BILLED MARSH
- YELLOWLEGS, GREATER
  - , LESSER
- YELLOWTHROAT

### LAGOON SPECIES

- COOT
- CORMORANT, DOUBLE CRESTED
  - , BRANDT'S
  - , PELAGIC
- DUCK, RUDDY
- EGRET, COMMON
  - , SNOWY
- GALLINULE, COMMON
- GODWIT, MARBLED
- GREBE, EARED
  - , HORNED
  - , PIED BILLED
  - , RED NECKED
  - , WESTERN
- GULLS, BONAPART'S
  - , CALIFORNIA
  - , GLAUCOUS WINGED
  - , HEERMAN'S
  - , MEW
  - , RING BILLED
  - , SABINE
  - , WESTERN
- HERON, GREAT BLUE
- IBIS, WHITE FACED
- JAEGER, PARASITIC
- KINGFISHER, BELTED

### LAGOON SPECIES

KITTIWAKE, BLACK LEGGED
KNOT
LOON, ARCTIC
  , COMMON
  , RED THROATED
MERGANSER, RED BREASTED
OSPREY
PELICAN, BROWN
PHALAROPE, NORTHERN
  , WILSON'S
SCOTER, SURF
  , WHITE WINGED
TEAL, CINNAMON
TERN, BLACK
  , CASPIAN
  , COMMON
  , ELEGANT
  , FORSTER'S
  GULL BILLED
  , LEAST
  , ROYAL
WHIMBREL
WILLET

### BAY DUCKS AND GEESE

BRANDT, BLACK
BUFFLEHEAD
CANVASBACK
DUCK, RUDDY
  , RING NECKED
GADWALL
GOLDENEYE, COMMON
GOOSE, CANADA
  , WHITE FRONTED
MALLARD
MERGANSER, COMMON
  , HOODED
  , RED BREASTED
OLDSQUAW
PINTAIL

### BAY DUCKS AND GEESE

REDHEAD
SCAUP, GREATER
  , LESSER
SHOVELER
TEAL, BLUE WINGED
  , CINNAMON
  , GREEN WINGED
WIDGEON, AMERICAN

18 February 1969

FOR THE LOS ANGELES MEETING
Feb. 25-26 1969

S W REGION

Mr. Irving M. Terzich
Pacific Southwest Region
Federal Water Pollution Control Administration
760 Market Street
San Francisco . California 94102

Dear Sir:

I write in concern as a private citizen of Newport Bay over our remaining unique marine and shoreline resources, and for the imperative need for proper,protective, coordinated studies and controls for their rightful conservation. My qualifications are not those of a professional but only as a citizen believing strongly in protecting our environment against unnecessary exploitation and pollution.

I write in concern for Upper Newport Bay which is located in Orange County, California and adjacent to the City of Newport Beach. It is connected to the ocean through Newport Bay and extends about three miles inland from the Pacific Coast Highway. At present the Bay is mostly undeveloped except at the southern end. This Upper Bay is very special to all of California as it is the last remaining estuarine-type environment in Southern California and has the last salt marsh enviroment of its kind south of Morro Bay.

I write in deep concern that this very important estuary is being critically threatened by forces possibly not attuned to the Bay's valuable, irreplaceable, far-reaching ecological contributions to our enviroment and to man. It should be preserved and I urge a priority study within your Department to help safequard this vital public resource.

Enclosed are two local newspaper accounts which most adequately express my concerns and of other private citizens, and a copy of a letter which so clearly defines the situation that I feel I can make my letter short as a result.

I write in concern over pollution of all our local waters. Since our heavy rains the Bay has a great deal more phospherous action which possibly might come from phosphate fertilizers flooding down in the storm channels into the Upper Bay. The Bay is very murky and disturbed and I cannot but feel this could be serious. Our ocean is polluted with sewage, some from storm damage and some from the continual disposal plants. One of our greatest recreations is swimming and I fear now with so many pollutants entering our Newport area waters, including the formidable oil slicks,that this, and all such water orientated sports could be seriously endangered.

I write in concern for all water polution controls and for clean-up programs and for protective studies and technologies to preserve these public resources.

Sincerely,

MTS/b
ENCL: 3

Maria T. Speirs 2000 E. Ocean Front Balboa Calif. 92661
(Mrs. William C. Speirs) 714-675-4929

DAILY PILOT (Newport Harbor Edition), February 19, 1969

### *Conservationist Plea:*

# 'Leave Back Bay Alone'

**By JOHN VALTERZA**
**Of the Daily Pilot Staff**

More than a dozen conservationist and academic groups, through the Friends of Newport Bay, today lodged a protest to the California Resources Agency against bulkhead-marina development of Upper Newport Bay.

The "Friends" organization, which is waging a campaign to maintain free public access to the bay, is protesting plans by the Irvine Co. to develop the estuary as a boating-residential area as "not in the best interest of the majority of the people of the State of California."

The communication to the state agency, signed by bird-preservation society representatives, and scientists, cites eight lengthy points reinforcing their opposition to the elimination of the bay as a natural estuary.

These points include:

—That the bay in its natural state has served as a wild lands recreation area for more than a century and that it is needed as a recreational area in the future because of population growth.

—That the proposed land exchange whereby the land firm receives valuable waterfront property in exchange for Big Canyon and a man-made arm into the bay "will deprive California citizens of free, public access to the bay along the present three-mile east shore road."

—That the bay is used for educational and research purposes by educational institutions.

—That it is an outstanding example of the salt marsh and marine life ecology and is "one of the few remaining major resting and feeding areas for birds traveling the 1,000-mile-long Pacific Flyway."

Dredging, the group maintains, will destroy the natural environment of the bay and will add to the threat of extinction of wildlife in the state.

The group also cites pending congressional legislation intended to preserve the few remaining tidal estuaries and marsh lands of the nation, and that Newport Upper Bay should be protected under that legislation, "since California has lost four times more of its tidal estuary habitat than

(See BACK BAY, Page 2)

*From Page 1*

## BACK BAY . . .

any other state in the union."

The group also warns that, since the bay, developed or not, receives drainage from nearby land, heavy urban development would cause pollution and make bay waters "unfit for swimming and water sports, for which, ostensibly, the bay is to be dredged."

Instead of bulkhead development in the bay, the group is urging development of the area as a regional park with free public access. Existing public shoreline should remain publicly owned, members maintain.

"We are opposed to the exploitation of an irreplaceable public resource for the benefit of the few," the association told the state agency.

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best available copy.

# "Back Bay Battle Rages"

THE NEWPORTER, February 20, 1969
Newport Beach, CA

Photo by Larry Dunmire

*HERE'S HOW IT IS - Noted Orange Coast biologist John Johnson discusses the endangered flora and fauna of the Upper Newport "Back Bay" at one of the spots along last Saturday's nature walk.*

A battle is ranging over possible Back Bay area development. In one corner of the ring is the Irvine Company, attempting to gain clear title of the Upper Newport Bay area. In the other corner is a compilation of many diverse nature and recreation-minded groups that now are beginning to mold together and form what is looking more and more to be a formidable adversary to the large land development company.

In order to better understand this problem, approximately 1,500 interested citizens trudged along the muddy Back Bay road and braved intermittent thunder showers Saturday morning to see and hear one side of the argument.

The two-hour, one and a half mile nature walk was organized and guided by members of the Friends of Newport Bay, the Audubon Society, the Orange County Advisory Committee on Natural Lands Conservation, the Ocean Fish Protective Association, the Sierra Club and the Orange County Marine Dealers Association.

Those braving the rains were divided into groups of about 75 and each group, with its own guide, hiked down the rainsoaked road, stopping occasionally to gaze at "raft" of birds pointed out to them by the guide. Ironically enough, there were few birds to be seen, much fewer than the previous weekend when this reporter observed many thousands.

*This story was researched by Newporter Feature Writer [illegible]*

Also along the way were displays of foliage, shellfish, and wildlife characteristic to that area which were discussed by the noted local biologist John Johnson from Corona del Mar High School and other zoologists.

Johnson explained of the ever-so-important need to preserve the Back Bay and its natural wildlife. He told of the complex life-cycle which is so unique and so essential for the preservation of California's beautiful fowl and wildlife. His most salient and stressed point was of the grave shortcomings of Back Bay development.

"When we eliminate the Back Bay, all these majestic animals will become extinct," he said. "Not only is it a place for the birds to hide, it is also a nursery for many species of fish and a water processing plant."

The distinctive bay serves Southern California as a wildlands recreation area and also a scientific laboratory for thousands of students and university researchers. The staff of the State Lands Commission says, "proposed development would convert public waterways into a captive waterway primarily for the use of private residential boat owners who would occupy the created area and dominate the bay."

It is an outstanding example of coastal marsh and esturiane environment supporting a flora of salt marsh and marine plants and a rich fauna of birds, small mammals, marine fishes and mollusks. It is, perhaps, the last available extensive area of this environment remaining south of San Francisco Bay nurturing an untold variety of marine life and over 100 species of migratory birds. Destruction by dredging will deprive us of a unique natural resource.

The bay, finally, drains a critical portion of Orange County, 89,000 acres in all assimilating pesticides, fertilizers, silt and potential pollutants. It protects marine life and aquatic recreation in the lower bay as well.

**This reporter went with a group guided by Dr. Charles Greening of Fullerton, chairman of the Friends of Newport Bay, and also field trip chairman for the Audubon Society.**

The bay is a tidal bay, he told, moving up and down with the lunar pull. There are several ecological communities living together. There are the shore birds and water birds, swallows, hawks, an occasional eagle and many layers of marine life.

"There's no way to save part of a marsh," he stressed. The Back Bay Road is federally owned, that land covered all the time by water is federal and the mudflats between high and low tide mark belong to the Irvine Company."

Please Turn to Page 15, Col. 1

BATTLE RAGES . . .
Continued From Page 1

"On a good day of watching you can see over 100 species of birds. Back Bay is of archeological, geological and biological interest. It is an educational resource, as many schools take fieldtrips to the area. It is of archaeological interest because the area is one where both land and marine fossils of the Pleistocene era are found by University of California archaeologists. Back Bay was inhabited by tribes of Indians before the coming of the Spanish.

*A summary of the many facets of this critical problem will be given in next week's Newporter.*

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# Desomount Club

*Nature Study* *Conservation* *Appreciation*

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March 3, 1969

Mr. James McCarty
Southwest Regional Office, FWPCA
Room 1802 - 100 McAllister St.
San Francisco, Calif. 94102

Dear Mr. McCarty :

Desomount Club urges that a moratorium be declared on all alteration of estuaries until there is a listing of estuaries; and a study made of the uses to which they have been subjected, and the values found in those that are still in natural or near-natural condition.

If development is allowed to continue until completion of the study provided for in Public Law 89-753 we foresee there being little left to protect, so great is the pressure for development in such areas.

Estuaries on our California coast are valuable :

1. As open space
2. As nurseries for ocean fish, as habitat for other marine fish and mollusks
3. As resting and feeding areas vital to survival of migratory birds on the Pacific flyway.
4. As habitat for marsh birds.
5. As a natural reclaimant of pollution through oxygenation of its plant life.
6. As an important recreational resource for fishing, hiking, observation and study of wildlife, painting, picnicking, enjoyment of the natural scene, wading, swimming, and boating.
7. As a field for scientific study by students at all educational levels.

Many estuaries have been severely damaged as far as the above values are concerned by :

1. Being polluted by domestic, agricultural, and industrial wastes and pesticides being emptied into their waters.
2. Being dredged, thereby upsetting the ecology of the area.
3. By bulkheading.

J

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4. Navigational activities and noises disturbing to birds, to many recreationists, and to scientific study.
5. Marina development.

Population pressures have only recently awakened us to the fact that our estuaries as such were rapidly being given over to commercial and industrial uses. Army engineers recently spoke of establishing marinas at 35 mile intervals along the coast ( They have a preference for estuaries. ) The disappearance of open space has alerted us to its importance in relieving us from the tensions of urban living.

Industrial development in the estuary at Eureka, the encroachment of fills on San Francisco Bay, the " dead " waters of Los Angeles harbor serve as a warning to what may happen to the few relatively undisturbed remaining estuaries.

Locally prompt and decisive action ( in the form of a moratorium ) IS expremely important to save Upper Newport BAy and Bolsa Chica Lagoon, outstanding in natural values for the densest population center in the West.

Respectfully yours,

Evelyn Gayman

( Mrs.) Evelyn Gayman
Conservation Chairman for
Desomount Club

**Desomount Club**

*Nature Study* *Conservation* *Appreciation*

## A RESOLUTION

## Urging the State Lands Commission to rescind the permit for the Newport Bay trade, and the Federal Water Control Administration to act to conserve the natural values of the Bay

WHEREAS the Constitution of California proclaims in Article XV Harbor Frontages, etc. , SEction 2 " No corporation claiming or possessing the frontage or tidal lands of a ... bay ... shall be permitted to exclude the right of way to such water whenever it is required for any public purpose, nor to destroy or obstruct the free navigation of such water; and the legislature shall enact such laws ..that access... shall always be attainable for the people thereof." Section 3 " All tidelands within two miles of any incorporated city.. and fronting on the water of any harbor, estuary, bay or inlet used for purposes of navigation shll be withheld from sale to private persons ... or corporations."

The State Lands Commission has authorized the trading of Orange County-owned tidelands to the Irvine Company.

The Irvine Company's plans involve dredging of the Bay and residential and commercial development of the tidelands.

Upper Newport Bay is used by thousands of people for many forms of land-water oriented recreation.

Upper Newport Bay is a field for scientific study for students at all levels of education.

Upper Newport Bay is the only resting and feeding ground for migratory birds of the Pacific Flyway in Southern California.

Upper Newport Bay is the habitat of many resident birds.

Upper Newport Bay is a habitat for a variety of marine life found only in such a muddy estuary.

Upper Newport Bay is the last of six sizable estuaries between Morro Bay and Ensenada still in nearly natural condition.

The proposed land exchange would deprive citizens of free access to most of the Bay.

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**Desomount Club**

*Nature Study* *Conservation* *Appreciation*

Dredging would be destructive to the ecology of the Bay.

Upper Newport Bay serves at the outlet for drainage from heavily populated and industrial development surrounding the Bay.

Contemplated urban development could be expected to augment the pollution.

Destruction of marsh plants would diminish the natural purification process plants perform.

Development can be expected to interfere with the flushing action of the tides.

THEREFORE BE IT RESOLVED that the Desomount Club urges the State Lands Commission to withdraw its sanction of the trade of Upper Newport Bay tidelands to the Irvine Company as being both illegal and contrary to the best interests of the State , and

The Federal Water Pollution Control Administration exercise controls necessary to enable the Bay to retain its natural functions.

Unanimously adopted by the Desomount Club Board in regular executive session March 8, 1969.

Evelyn Gayman

Evelyn Gayman
Conservation Chairman for
Desomount Club

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385 Dearborn St.
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February 10th, 1968

Mr. Irving M. Terzich
Pacific Southwest Region
Federal Water Pollution Control Administration
760 Market Street
San Francisco

Dear Mr. Terzich:

Please, forgive my having been so careless in submitting only one copy of testimony to be put on record for your Hearings, February 25/26, Los Angeles. Enclosed are two further copies. Obviously, I am in no position to make really authoritative suggestions as far as the administration of the nation's estuaries is concerned. But we have been ardent supporters of H.R. 25 and the sort of general suggestions contained in the original proposals for H.R. 25. We were disappointed to see the estuarine act weakened and the Secretary of the Interior's jurisdiction lessened as far as the Federal control over estuarine development is concerned.

I take the liberty of submitting my own testimony simply because it points up conflicts in planning, conflicts which in turn will almost inevitably lead to conflicts in land and water use at Upper Newport Bay. The absence of a comprehesive masterplam for the development of the bay and the absence of projected water quality studies f bay posterior to development dramatize clearly the need for control other than what exists now. Inasmuch as the California State Lands Commission approved the trade of tidelands involving this particular estuary, it seems evident that it is not the proper agency to protect our land and waters. Its policies would need to be revised completely so as to include ecological considerations. Indeed, it would seem imperative that ecological considerationstake precedence over financial, short-term profit considerations. A review of the recent State Lands Commission's decision re Upper Newport Bay will show that decision for approval of the trade was reached on the basis of economic data--data, incidentally which have been disputed by many, even by Orange County's own Assessor.

New regulatory measures with regard to land and water use in and surrounding estuarine areas obviously have become necessary. In Massachusetts recent state legislation requires review and prior approval of all proposed modifications of marshlands, shores and coastal land. This law overrides the privelege of private ownership, in recognition of the effects of such modifications on the public interest. In the light of what happened with respect to the Upper Bay Land Exchange-which was, as I have said, approved by the State in absence of any plan for the development of the bay--we would strongly urge the formation of a joint commission, with State and Federal agencies involved. Indeed, the Memorandum of Understanding between the Secretaries of the Army and the Interior lists some of the agencies which, in our view, should have significant say as far as modification in estuarine zones is concerned: State Department of Natural Resources (Regional Water Quality Board, Department of Fish and Game--and possibly Department of Parks and Recreation), Federal Department of the Interior (Bureau of Sport Fisheries with Fish and Wildlife Service, Federal Water Pollution Control Administration, and perhaps the National Parks Service). In case of doubt, the matter should then be referred to the Secretary of the Interior for further study. Tragically enough, little is yet known scientifically abo fauna, interrelation of biota, etc. in estuaries; similarly, we still do no have all the necessary tools to gauge correctly effects of development of estuaries. Extreme caution in any development involving estuaries is therefore in order. And it would seem imperative that ertain questions must receive prime consideration if an estuarine area is developed :

1) How intensively can the estuary be developed without adverse ffects, for instance, of pollution ?

2) How intensively should the estuary be developed, given its riginal rich ecologicaly values ? Will the development irreversibly hange or destroy these natural resources ?

The concept of multiple use should not be applied in stuarine zones on account of the extremely sensitive nature of estuarine aters, and in the light of the fact that the economic value of estuarine atural values cannot now be fully assessed. Modification in estuarine ones which threaten these natural resources with destruction should therefore be held in abeyance.

Finally, it would appear that a new park concept needs to e established. In California we have recreational parks and wilderness arks, but no category which would allow for preservation of natural esources and those recreational uses which might be compatible with uch preservation. In the instance of the Upper Newport Bay, for instance, I could envisage creation of various recreational areas (hiking trails, areas for small sail boating, marine museums, zoo, etc.) which would yet allow present natural values to exist and persist. Creation of nly a wilderness area might be unrealistic given the need for recreational acilities particularly for small children and elderly people in this area; reation of a recreational park with power boating etc., on the other hand, ight threaten the life of wildlife.

These are suggestions growing out of the long report which I enclose.

Yours Truly

Babb

Mrs. Howard S. Babb

507 Via Marina
ewport Beach
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To : The Assembly Subcommittee on Beaches and Conservation and
The Assembly Subcommittee on Marine Resources

Let me say how grateful I am that you are giving me the chance to testify for a cause that is dear to very many friends and families who know of the scenic beauty, the wonderful open space, the natural park, which is in Orange County at *Upper Newport Bay*. I believe that we are justified in drawing your attention to this specific issue because of its great importance to all citizens of this county, indeed, of all of California:

1) The Upper Newport Bay is an estuary *unique* in its setting in this Mediterranean climate which fosters a *flora and fauna not duplicated in any other coastal region* (see Chapman, V.J., *Salt marshes and salt deserts of the world*, The University Press, Aberdeen, London, 1960, as quoted by Vogl in enclosed bibliography).

2) Ecologically, the Upper Newport Bay is therefore an immensely rich area. Christmas Counts made by the local Sea and Sage Audubon Society list up to 106 species of birds observed on and over this bay which constitutes one of the most important stations on the Pacific Flypath. Removal of the marshes and tidal flats *seriously threatens the survival of many shore-, marsh-and game-birds*. Similarly, the bay plays a vital role in various life-cycles of so many fish and game fish.

3) The Upper Newport Bay is irreplaceable scenically and typical in its generous expanse of Southern California's natural coastal setting, one which has been irreversibly changed and modified in a great many places particularly near and in Orange County. Preservation of such open space has become critically important, as is stated by the County's own park and planning departments.

4) The Upper Newport Bay comprises tidelands which were originally protected by a tideland trust in behalf of all the people in California. That trust, however, still appears to us to have been vitiated in spirit by the Enabling Act of 1957 (which became State Statute the same year). Thus Orange County has been able to trade away state-tidelands which form this precious estuary.

For these and many other reasons--which we hope to summarize in what follows--we therefore appeal to you to-day in hopes that you may perhaps be able to yet protect this estuary, the largest, undeveloped estuary in Southern California, unique in the Mediterranean climate, and all the more important since the recent report on estuarine areas already lists a 67.0 percent loss of estuarine habitat in California. *This loss of 255,800 estuarine acres exceeds all others in the nation and is almost four times as high as the next highest loss* of 68,000 acres in Texas. And, indeed, we plead that a thorough re-evaluation of presently proposed plans for the bay's development be made now and before it becomes necessary to investigate the developed bay primarily as another outdoor pollution laboratory, as is the case with similarly developed bays and estuaries throughout America and Europe (see, *Estuaries*, in enclosed bibliography). And the *short-term financial advantages* that might accrue to this City and County will be outweighed many, many times by *the economic losses sustained in the long term* by City, County and the State of California....

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## Attendees

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| Mr. James C. McCarty, Jr. | Deputy Director, Pacific Southwest Reg.<br>Federal Water Pollution Control Administration, USDI<br>760 Market Street<br>San Francisco, CA 94102 |
| Mr. Louis E. DeCamp | Chief, Estuarine & Oceanographic Programs Branch<br>Div. of Planning & Interagency Programs<br>Federal Water Pollution Control Administration, USDI<br>Washington, DC 20242 |
| Mr. Irving M. Terzich | Public Information & Education Office Director<br>Pacific Southwest Region<br>Federal Water Pollution Control Administration, USDI<br>760 Market Street<br>San Francisco, CA 94102 |
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| Mr. William H. Crooks | Senior Water Quality Control Engineer<br>State Water Resources Control Board<br>1416 Ninth Street<br>Sacramento, CA 95814 |
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| Mr. John B. Gaskill | Chairman, Board of Directors<br>Ocean Fish Protective Association<br>1417 S. Georgia Street<br>Los Angeles, CA 90015 |
| Rear Admiral James R. Davis, USN (Ret) | Director of Public Works<br>Port of San Diego<br>Post Office Box 488<br>San Diego, CA 92112 |

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| Mr. C. L. Martin | Chairman, Marine Resources Committee<br>California Wildlife Federation<br>5439 Dundee Avenue<br>San Diego, CA 92120 |
| Mr. George M. Dawes | Harbor Coordinator<br>City of Newport Beach<br>3300 Newport Boulevard<br>Newport Beach, CA 92626 |
| Dr. Charles P. Greening | Chairman<br>Friends of Newport Bay (Newport Beach)<br>1933 Skycrest Drive<br>Fullerton, CA 92631 |
| Mr. Paul E. Giguere | Water Projects Coordinator<br>State Department of Fish and Game, Reg. 5<br>107 S. Broadway, Room 9012<br>Los Angeles, CA 90012 |
| Mr. Ronnie Hein | State Department of Fish and Game, Reg. 5<br>107 S. Broadway, Room 9012<br>Los Angeles, CA 90012 |
| Mrs. Peta J. Mudie | Research Associate<br>San Diego Museum of Natural History<br>(Torrey Pines Wildlife Association)<br>RFD Box 20-F<br>Del Mar, CA 92014 |
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| Mrs. Elsie Kroesche | League of Women Voters<br>254 B Cabrillo Street<br>Costa Mesa, CA 92627 |
| Captain W. H. Putman | State Department of Fish and Game, Reg. 5<br>511 Tuna Street<br>Terminal Island, CA 90731 |

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| Dr. Richard Ball | Sierra Club, Angeles Chapter<br>942 Galloway Street<br>Pacific Palisades, CA 90272 |
| Mr. Raymond M. Hertel | Executive Officer<br>Los Angeles Regional Water Quality Control Board<br>205 S. Broadway, Suite 408<br>Los Angeles, CA 90012 |
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